

Paleo Solution - 227

[0:00:00]

Robb: Howdy folks. Robb Wolfe here, another episode of the Paleo Solution Podcast six listeners can't be wrong, today our amazing guest he can save you from bio film but if he can't save you from bio film then it is massive traps and lats can save you from a burning fire, it's Dr. Michael Ruscio. Doc how are you doing?

Michael: Hey Rob, I'm good. How are you doing buddy?

Robb: Good, good. We're battling really stellar internet connection but we've set the bar low with the Paleo Solution podcast as far as recording sound quality so we'll just run with what we get today. So ...

Michael: Crossing my fingers, absolutely.

Robb: Absolutely. So doc pinged me maybe a week or two ago, said that he has some super juicy stuff related to inflammatory bowel disease. Doc, let's climb into the bowel and see what's going on here.

Michael: Let's have a look. You know, something that I've noticed over the past couple years and over time I've kind of honed in on this issue, there's always patients that don't seem to respond really well to the work of a clinician does. So every clinician kind of has their own work and their own methods that they worked through and no matter how good you are, there's always going to be a responsive curve. Some people are going to respond awesome. A majority of people are going to respond well and then they're going to have – some people also don't respond very well.

And it's always frustrating. Me being a recovering OCD perfectionist, I know that those tendencies are still in the back of my mind so I really kind of remunerate on the people who are non-responders. And one of the things that I've noticed as I've kind of expanded the workup that I do for these patients, I've started to include antibody screenings for inflammatory bowel disease and some of these are fairly new but there's these ASCA antibodies. I think we talked about these last time which are anti-saccharomyces cerevisiae antibodies which is one of the

components that screens for Crohn's and then there's PANCA antibodies that screens for ulcerative colitis, and there's actually a little more to it than just those two but those two are kind of initial screenings.

Blah, blah, long story short, what I've noticed is that in some people who haven't responded to anything else, they've actually had inflammatory bowel disease that has not ever been really diagnosed. And so what I think happened is if – let's say John, John's like our example patient. John had a lot of gut issues going on, he's really feeling terrible, gas, bloating, oscillation, constipation, diarrhea or maybe just diarrhea predominated. Feels ill often when he eats and he goes in the paleo diet he sees 70% improvement how he's feeling.

Then he maybe goes on a probiotic regimen, maybe some probiotics along with it, maybe some resistance starch. He gets himself to 80% resolution. Maybe he pops in, sees a func med doc and does a workup for a gastro intestinal parasite. They treated for the parasite and now he's just 90% resolution something like that. But he's still not able to get that next step.

Well what I've noticed in a few patients is these patients have actually had inflammatory bowel disease but they've never really figured it out because they've been managing it so successful with diet, with probiotics and maybe some functional medicine interventions and to some extent, it almost doesn't really matter if we're making a diagnosis or not because we're kind of just made me a disease. But it may not to some extent because there's this pattern of inflammatory bowel disease that is relapsing and remitting.

So it will go into intermission for a while and then patients can relapse and have a flare and then if it's bad enough, people will need some kind of anti-inflammatory medication to put it back into remission. And so as I've been noticing this, we've been using some herbal anti-inflammatory to try to teach these patients because when you look at inflammatory bowel disease, it's usually treated with anti-inflammatory medications, tumor necrosis factor alpha inhibitors or other stronger biologics and they work well to suppress the inflammatory response.

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But the stronger they get, the worse the side effect profiles get. And the side effect profiles can be really, really bad. And so yes, they work but they almost create as much damage as they prevent on the other end. So I've been looking into the literature on this and there's some studies that compare the efficacy of herbal anti-inflammatory to placebo and these studies have shown that the intervention with the herbal anti-inflammatory is superior to placebo.

But that's not like the strongest data in the world because with inflammatory bowel disease, a lot of this stuff is subjective. There's a very larger percentage of improvement that you could attribute to placebo. And so while it's nice to show that the herb is better than placebo, what would be really nice is to have a direct head to head comparison of a drug to an herbal anti-inflammatory. And that's actually a paper that I recently came across.

There was this researcher who've published a number of studies looking at the placebo versus the herbs and I've reached out to this research and I said is there anything available looking at the head to head on the herbal versus the drug. And he sent me a few great papers. The one was a meta analysis and it was entitled comparison of the efficacy and tolerability of herbal medicines with five amino salicylates in inflammatory bowel disease, a meta analysis of placebo controlled trials involving 812 patients and was published in 2013.

And what is really cool about this is they looked at mesalazine which is one of the first drugs that will be administered for mild to moderate inflammatory bowel disease. And they looked at mesalazine which is just an anti-inflammatory against different herbs. Some of the herbs were andrographis, boswellia and they all...

Robb: I lost you there for a second. I lost you for about 30 seconds right after the boswellia.

Michael: So in this study they looked at boswellia, andrographis and essentially cilium. It's called plantado and the study that's just the biogenical name for cilium. You kind of have to work to tease some of this out but when they compared it, they compared it with what's called a relative risk analysis and are people familiar with that or I'd give a quick preface on that?

Robb: I would give a preface on that, yeah.

Michael: So relative risk is essentially you take data, you plug-in into these 2 by 2 tables and you're essentially trying to compare the treatment that you're studying, compare to another treatment. The treatment may be a drug. The treatment may be people who don't do something like you may look at smokers versus non-smokers and for this case we're looking at the herb compared to the drug. And so when you perform the relative risk analysis, if it's a 1 that means the herb worked as effectively as the drug.

If it's anything above a 1, it favors the intervention which in this case is the herb. If it's anything below 1, under 1, it favors the controlled which in this case is the drug. So again, anything above 1 favors the herb in this herb to drug comparison and so looking at clinical remission, the relative risk was 1.28 which is the significant favorability toward the herb.

Now I would say it's not a hugely significant difference but still, it's slightly favoring the herb for in use in clinical remission. Looking at clinical response, the relative risk was 1.19 so again, slightly favoring the herb that was also considered significant. Endoscopic remission was .85 so that's slightly favored the drug. Endoscopic response was 1.14 slightly favoring the herb.

And so I won't bore you with all the details of this but the big picture is the general finding was that the herbs were about if not slightly but not always considered significant more effective than the drugs.

Robb: And generally with lower side effects possibly.

Michael: The adverse events were actually very low. There was a few reports where people reported some kind of gastro intestinal distress with andrographis. Andrographis at least according to this meta analysis appeared to be the owner herb that had the higher likelihood of a reaction which is why I would recommend that people work with someone who understands these herbs because it may be kind of a natural version of the drug approach where you try one drug or one herbal anti-inflammatory, see how well that's tolerated and if that doesn't work, you can try a different one.

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And the way that I think it would be most effective to use these things although this is just kind of my opinion, you would try to use these things to push someone into remission and then hopefully they wouldn't really need a whole lot of anti-inflammatory ongoing as long as they had good microbial health, they had a healthy diet. They were using some probiotic pre res things like that.

As long as the main starch was good, for a lot of patients, it may be sufficient to use the short course of the herbal anti-inflammatory to try to get this into remission.

Robb: Gotcha.

Michael: That's something for people to think about and maybe they're kind of paint a little bit more of context to this. I've had a couple patients where we've gone a few steps down the road and they've gotten better. Actually one patient in particular, they got a little bit better but really not what I would consider a clinical win.

And so they wanted to start doing food allergy testing. This one patient in particular really wanted to do food allergy testing, really wanted to do heavy metal testing and I have the conversation with the patient which is I just haven't found the food allergy testing even though there are some people who I think would really fight me on this, I really haven't found the food allergy testing to be really very clinically useful nor have I seen the heavy metal testing.

But this patient really, really wanted to do this analysis. She really pushed on me so I said okay, I'll do them for you. If it's going to get you to a place where you're going to feel better about everything and you've kind of checked that off your list and get pass it mentally, I'll order those things for you. So order the food allergy profile, came up with a few food that just kind of seems random foods, one of those foods for a couple of months, no change. Did a heavy metal profile, nothing really significant on that profile.

And at the same time that we had ran that profile, I ran the expanded inflammatory bowel disease panel through the lab corp and we found that she had three of four of the antibodies that are associated with inflammatory bowel disease positive. And the way that you can score the serology is the more of the antibodies are positive meaning you know, 1

to 4 positive, 2 to 4 positive, 3 to 4 positive. So the more they're positive or the higher the level of the positivity, the more severe the disease activity.

And so in her case, this is a form of Crohn's that can form fistulas or strictures, so it's a fairly intensive form of Crohn's and I was really happy that we caught that because what I hate to see this patient do is go out there and do more for food allergy testing, do some testing, more food allergy testing, do some heavy metal detox program and just burn off a bunch of money with some of these pseudo science interventions that we see in alternative medicine.

And I'm not saying that there's no application for food allergy test or for heavy metal testing but they're definitely not super well valued yet. And so in my opinion it seems to be kind of hit or miss for patients. Whereas looking at that evidence compared to you have a fairly severe care of inflammatory bowel disease of course that's really the diagnosis and the treatment that we want to kind of focus on. So I think it can really help some people from getting caught into a black hole of internet self diagnosis and...

Robb: Doc what do you feel like made you – maybe his is a dumb question. What do you feel is causing this say like in this particular person? So you have this inflammatory process – is it a dietary factor? Is it low vitamin D? Is it stress? Is it lack of sleep? Is it a little bit of all of those? Do you have any sense of what's going on here? Is it more just kind of – we're in the spot where we can identify some clear pathology with some wood work. We can identify that...

Michael: Yeah. You dropped that a little bit there for a second Robb but hopefully you can still hear me

Robb: Yeah. You're still coming through.

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Michael: Okay good so yeah, there's actually I believe there's the Canadian Journal of Gastroenterology in 2013 they published a review entitled environment and inflammatory bowel disease and maybe shown that smoking is a risk factor. Hygiene is also a risk factor so the more siblings you have it may be protective growing up a farm, maybe protective, early

colonization with H pylori and worms may also be protective and that's something that I want to actually come back to later which is the hygiene hypothesis because I don't want to connect back to that.

But definitely a more dirty or maybe like a more paleo type of environment during development has been correlated as a projected factor. And on the other end, urban living environments are a risk factor. Using no steroidal anti-inflammatory drugs is a risk factor. Using acutane is a risk factor. Antibiotics early in life is a risk factor Certain dietary issues a risk factor and those are a little bit tiery so I'll leave that for another discussion. Breastfeeding is protective. Northern residence is a risk factor. Ambient air pollution is a risk factor and stress is a risk factor.

So we've got the risk factors pretty well dialed in and you make an awesome question which is I think what you're driving there is how can we treat that at the most root cause and I'm right there with you which is why I would always recommend people start with dying lifestyle. So you would try to mind your stress. You would try to not be on any drugs or medications that aren't needed. You would remove – you just actually follow paleo or the auto immune paleo diet. Maybe you would try the SCD diet to see if that would be helpful.

And then from there you may want to get a good gastro intestinal evaluation to see if there are any imbalances in your micro flora and just to do any kind of work you can do to try to tone your immune system as much as possible. And the last thing that you would do would be to try to manage a process after you've done everything that you can with a modifiable factor because some of those factors that I listed aren't really modifiable Robb. You can't really go back and colonize yourself with h pylori before the age of 3 if you're 33.

So you want to do everything you can to put yourself in the best position and then if there are some short comings, that's where I'm trying to get people some information on how they may be able to manage the flares of those inflammatory bowel disease after they've done everything else.

Robb:

Gotcha. Doc, there was a recent paper that I think was really good. I did a piece on it talking about gluten sensitivity. Does gluten sensitivity really exist and they were hanging a lot more of the issue on fog neps and what not. But a lot of the discussion around this stuff was a really good

question I didn't have a great answer for it at the time. But when you talk about the hygiene pieces, the question that folks were asking, why is this stuff popping up so much? Why are we seeing this now or maybe we're just actually looking for this stuff now that there's always that potentiality.

But you know, it definitely more of our population lives in urban centers now. We have more chlorinated wear. We definitely do antibiotics much more robustly. We introduce antibiotics into our food stream. We don't sleep as much etc. so we have multiple vectors here that seem to increase the risk factors for all of these kind of gut related issues and so it may not be any one thing or maybe different things depending on the person but were clearly moving in a direction in general that is increasing the likelihood of later gut problems because of again possibly low vitamin D levels, maybe a too sterile environment so that the gut doesn't really figure out what cells from non-cells and those sorts of things.

Michael: Exactly. So I do think it's a huge environment factor there and there's also been some studies showing that if they use more ancient forms of wheat and I can't recall the name of the...

Robb: [Cross-talk] Yeah.

Michael: Yeah. If the patients react less strongly if at all to those more kind of ancient unadulterated grain so I think it's two fold probably more so the environment but then also just how we've kind of changed the grains and we kind of have a mono culture of we have like one of grain everybody eats instead of having the natural diversity that used to occur.

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Robb: And something that I've thought about a bit too is we've increased the gluten content of a lot of foods like breads and pastries they add enriched gluten flour to these products because it makes it sticky and doughy and all this stuff that we like about that. And our food processing facilities, we tend to get a lot of cross contaminations. So whereas before we might have had more localized exposure, lower exposure to these potential gut irritants. Now we just maybe have a chronic continuous load.

Michael:

Yeah. Absolutely. I agree. So yeah, it's definitely multi factorial and the other thing that I think maybe it's a good time to kind of segway over to it is how do we look at this changing environment and how it's affecting our reactively to multiple things? And one of the things that I'd like to kind of throw some information out in regards to is the hygiene hypothesis in terms of infections and this is one of the things that I spoke about at my lecture at paleo effects.

And I did a little video about this in the newsletter that will go out I think next week and I entitled it parasites, friend or foe. And certainly I think I'm the first one to kind of speak to this point but there's this kind of renaissance about how important a dirty environment is. Right? We've talked about that before.

But I think we also have to keep in mind that there are other studies that contradict that philosophy. So for example while it's certainly been noted that as the incidents of measles and mumps infections and fever infections has gone down, we've seen things like multiples sclerosis and Crohn's and asthma increase.

So there's been less infection. There's been more autoimmune disease so to speak. And there's definitely other evidence that support that same amount of thinking like the H pylori for example. If you're colonized by H pylori early in life, that protects you from irritable bowel disease later in life. But looking at H pylori there are also things that contradict that in patients with gastro carcinoma, the eradication of H pylori helps protect against atrophy scores and intestinal metaplasia so treating H pylori in some helps with gastric cancer.

Other studies have shown while there's not many, there's times reviewed not too long ago that when they treat patients with Hashimoto's – two patients who have Hashimoto's and have an H pylori infection, when they treat them and eradicate H pylori, the level of thyroid auto immunity decreases. So we see these contra indicating things. And another study in American Journal of Gastroenterology found that antibiotic therapy may induce remission of Crohn's or also of colitis but there's also a risk factor for Crohn's and ulcer colitis.

So how do we put together these very contradictory findings? I think what we really have to do with is timing and with time context and we

kind of talked about this a little bit the first time I came on this show. And I said it has to do with that immune developmental window which seems to kind of shield itself at about age 3. So it appears that colonization by most bacteria, viruses, worms, most of these microbes, if it occurs before the age of 3 are actually protective. But if it occurs after 3, that's when these things can be a little bit more deleterious and interestingly, the gut microbiotic, that also tends to kind of stabilize at about the age of 3.

So what's probably happening is your colonization window, you have 'til about 3 to get the colonization in there and then the immunization doesn't seem to be very classic at that point in time and these things can go from being beneficial and kind of colonizing you and then after the age of 3 you may look at it more like they're infecting you.

The other part of this is also the context or timing and context, the two key things I think are involved here, context would mean do you have good microbial diversity to begin with? Because it seems that the more diverse your colonization is, the more you can tolerate additional colonizers if you will, if that's even a word. So if you have good diversity and then the other thing is your genetics.

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Some that have very strong inflammatory and immune responses may be more prone to having an issue with late colonization compared to those that have a more mild immune response. So it's kind of context in genetics and not to be too long wind here but I wanted to share a few details to kind of reinforce that. But before I get a really long wind, any questions or anything you wanted to add in Robb?

Robb: No that sounds fantastic and it just makes me think about some of the predisposition for celiac disease or actually enhanced immune response. And so some of these folks tend to have celiac disease they actually tend to have lower rate of chronic gastro intestinal infections but these are the folks that may be early adaptations to living in proximity with other humans and other animals and so you've got an upside there with being able to fight off potential photogenic load. But then if something goes wrong then that enhanced immune response can clearly go south on this.

Michael: Exactly. And that's exactly what I mean by kind of the immune genetics context piece which is depending on what type of person you are,

exactly, you may have this really strong overzealous inflammatory response or you may be okay. So yeah. it's a great point and that's what I think is important because I look at this information in the clinic and especially as I've seen more of this hygiene hypothesis information surface, I really kind of question what I'm doing and I'm saying well I find so much of my day testing for and treating infections. Am I making the problem worse? And that was a legitimate reflection that I had and I really kind of paused and I said geez, am I making things worse?

And then I said well it can be because I went through all these specific patient cases in my head and this patient got so much better from treating *blastocystis hominis* this patient got so much better from treating giardia. This patient got so much better from treating X, Y or Z. And then I started to think about it more and more and I started going into the literature and that's when I figured out it's a timing piece I think is really, really important.

Because yeah, well I mean I'll treat you for an infection and they'll get a lot better and while there's no way for me to know for sure, what I'm assuming just happened is people have had late colonization or infection. They've had that infection late in life and now that infection instead of being protective is contributing to disease.

Robb: Right. Which you know it's kind of funny like on the evidence based medicine piece, we kind of want these black and white answers and when you start getting a time criticality tool, it gets really difficult in my mind to really construct like the classic evidence based medicine around this at least in a very linear fashion. It all gets difficult to educate the masses about this. It's something that may be beneficial for a young child, maybe completely different for an adult or the way that you would want to tackle treatment.

Michael: Yeah. It is. It definitely presents challenges and yeah, it's a hard educational piece I think but you know, you're the guy for that right? You're the man to sway the hearts and minds of the population. Right? I'll put that on.

Robb: Thank you. I just posted on my Facebook page the story of Sisyphus the guy that pissed off the gods and he got to push a rock up a hill and then the rock would roll over him and roll back down the hill and he just did

that for eternity. And I think that promoting health is very much that process because of job security at the minimum so yeah.

So doc, this stuff is super interesting. You had a piece also about kind of low carb diets and resistance starch and potentially that being that. You made a really strong case that might be an effective route to fat loss and weight loss. Do you want to shift gears and talk a little bit about that? I really like that. It was something I had been noodling on a little bit but your video piece on that was fantastic.

Michael: Sure. Yeah. I've done a few videos on the whole resistant starch piece and I'm going to try to do one or two more because it was a lot of data. It's very meticulous like through the data and I'm going to try to do one more that kind of brings it home to some concluding remarks. But I think the long story short of it is it seems like it's clearly been shown that people who go on low carb diets are going to potentially do damage to their micro flora and their butyrate production. And that's been challenge study after study after study.

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But the important piece is how you define a low carb diet from a moderate carb diet and that is not consistent between studies that the labels are not consistent between studies so you really have to look at the grams of ingestion of carbohydrate compared to the effect it has on GI function. And what it seems like is when people are at 25, 30 grams of carbs a day, they are definitely going to be doing some – I don't want to say damage because definitely...

Robb: Definitely some pruning of the micro flora.

Michael: Yeah. Exactly. Great term. So you will see certain population number counts go down and you will see production of short chain fatty acids like butyrate go down. When you get to around – it's hard to say because you kind of have to draw a little bit of an inference from looking at the studies on this but when you get to around 125 maybe 150 grams a day I would say definitely or consistently below 100 that's where it seems where you hit the bend.

Meaning if you're above 100 you're probably okay. Definitely if you're 150. 150 grams they've clearly been shown to not cause any significant

reduction in these bacterial populations or in short chain fatty acids. So definitely if you're 150 you're okay. If you're at 100 you're kind of on the cusp. And things that been shown, different bacterial populations like new bacteria eubacterium rectale one that's been studied. Another one is the roseburia species. Bifidobacter has also been looked at. These are kind of like figure the population there, most well studied and you see consistent decreases in these populations.

Interestingly the faecalibacterium prausnitzii which is also a butyrate producer and has been associated with inflammatory bowel disease specifically Crohn's, lower levels of these [Inaudible] has been associated with increased Crohn's activity. That actually makes it better on a low carbohydrate diet. So it seems that it's not all bad by going on a low carb diet but there are certainly some bad things that happened.

The good news is thought by using either fiber supplementation, probiotic supplementation or resistance starch supplementation you can reverse these changes and decrease numbers of these good bacteria and you can help increase your output of short chain fatty acids. So I think everyone's heard about resistance starch at this point in time. Everyone's probably heard of fiber and probiotic but what I'd like to add that maybe new information is a lot of the studies will look at type 2, 3 and 4 resistant starch.

And sometimes what happens is someone will see a finding showing that this study showed that this bacteria population was increased by resistance starch. But you have to read more closely because sometimes that is resistant starch type 3 or 4 and people weren't really able to readily supplement that. It's really the type 2 that is like the Bob's red mill tapioca starch or corn starch or potato starch. Exactly. It's not the 3 or 4. The 3 would be formed you cook potato, it cools and then you eat it.

But people aren't going to be eating a lot of that in or most people aren't going to be getting a lot of type 3 because it does come with a decent bowls of carbohydrates along with it. And then type 4 is a byproduct of a chemical process. So people aren't going to be getting much of type 4 either. So you really have to look at the benefit you can derive from type 2.

And while this is a bit of a conscientious issue it looks like bifidobacteria is not strongly fed by type 2 resistant starch. I've pulled a few papers on this and it does not seem like you get a strong bifidobacteria response. You do from 3 and 4 but not so much from 2. But that's where something like insulin or inulin or fructooligosaccharides or even just some of these soluble/insoluble fiber blends seem to work really well.

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Which is why I recommend using a combination of – and this is for people – this is not for everyone. This is for people who either have gut issues or people who are on low carbohydrate diets who are trying to prevent any pruning as you say Robb. I would recommend the combination of a low dose probiotic, a soluble insoluble fiber along with some resistant starch and I think that's going to be the best way to cover your basis.

And if you think about it for a second and we just kind of zoom out, it's just kind of coming back with a concept of try to have variety in your diet. So in this case instead of eating one vegetable every day, resistant potato starch, you're going to try to eat a number of vegetables. Resistant starch fiber and a probiotic mixture.

Robb:

Doc, so if you were to order out some food, what would be your favorites on the resistant starch story and any caveats with their preparation like if people are game for cooking some potatoes ahead of time and letting them cool down or like they cooked some fried potatoes one night for dinner and they're like okay I'm going to save some of these and have them for breakfast and cool them off.

Some of this stuff I've read about rice it actually needs to be frozen to be able to really increase the resistant starch content. The power boiled rice is better than say basmati rice, do you have some recommendations on the food side of that? And then also maybe is there a close to a one stop shop on the mixed fiber probiotic that you would recommend. Are there any products out there that you would recommend?

Michael:

Well in terms of the resistant starch, I can't say – I haven't found anything definitive in that regard just yet. It's something I'm currently researching and I spent most of my time thus far trying to establish what role they play with the micro flora. And that part I think I've got a good handle on. The next thing I'm trying to establish and this is something that I've seen

too many conflicting things and there's too many unanswered questions for me to feel comfortable making a recommendation just yet.

But the next thing I'm trying to do is trying to come up with a recommendation of you know, this would be the one or two things I would recommend to cover all your basis. In short, I think a mixture of some kind of fiber would be a good idea. I use a fiber product from Moss nutrition called fiber select which is just a blend of soluble and insoluble fiber.

I use that along with biotagen in the clinic which is from Klaire Labs and then I've been going a little bit away from the corn and potato starch and trying to go a little bit more for the tapioca just because I'm trying to avoid the ones that maybe kind of non-auto minute friendly so to speak.

Robb: Gotcha.

Michael: And there's another one I just came across. It's a mixture of root vegetables and the name of it is escaping me right now but that's not the one I'm going to be kind of experimenting with. Sorry I have to have a super conclusive recommendation but I'm working on it right now so bare with me.

Robb: No, that's great. That makes an argument for bringing you back so that's no problem on that. so green bananas, parboiled rice that's maybe being cooled, some potatoes although with the potatoes, some of the autoimmune considerations maybe a caveat is there any else that's kind of some low hanging fruit that I don't think that most people really thought about green bananas for example that that was a pretty – and I would argue from a glycemic low carbohydrate load standpoint, green bananas are maybe a better bet than a lot of these other options as far as...

Michael: Exactly. And that's the challenging thing is for me, for people who are not carbohydrate sensitive, this is an easy one just eat a variety. If you're not carb sensitive, you don't have to worry about the carb content. But the thing that's more challenging for me is trying to find the ones that are non-allergenic and are also low carb and then that's the challenging piece is trying to find the ones that fit all of these components.

I've looked around for the plantain flour but I'm still not – it still seems like it's a hit or miss meaning is this plantain flour, is it compared to – there's not really a green plantain flour and sometimes it's flour or it's starch because you don't want to have the flour. You want to have the starch. So that's what I say there's a few unanswered questions in that regard for the low carb people.

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I think like I said with the fiber, with the probiotic I mentioned, and the one of these forms of maybe like tapioca or corn or potato starch, if you tolerate it I think you'd be okay. But with some of the other ones, I'm still trying to figure out what the carb to starch or fiber ratio is with some of those things. So varies still out.

Robb:

Cool. That's all the stuff I've been tinkering with. Green bananas, more potatoes, trying to eat some of the potatoes cooled, I'm still trying to figure out I hope somewhere along the line that purple sweet potatoes have some resistant starch somewhere because those things are like eating cake. Those are totally amazing.

So I keep hoping that they have some resistant starch but maybe that's another point that when people have tried stirring the boat towards lower carb side of things, if the you know, whether you're talking about Mike Eades, or Loren Cordain, or even back in the Atkins days when you really got back to the core recommendations, it was get as much of that stuff from whole unprocessed food. Fruits, vegetables you know, low glycemic load carbohydrate sources and possibly part of the problem migrating away from that is the person who's limiting carbohydrates hoping to blunt in some response or something like that.

But then inadvertently all that they're doing is if they're reading refined carbohydrates, even though it's a relatively small amount, they're starving the colonic bacteria and potentially exacerbating or creating a situation of small intestinal bacterial overgrowth which is another here again on the education side it's like possibly limit the carbs although you need to be really careful about not only how much to limit it but the types that you limit.

Michael:

Exactly. And it doesn't seem to me like – it seems like a lot of people are actually kind of cruising in around maybe between 1 and 200 a day. It

doesn't seem like there's a ton of people who have to do sub 100 grams a day indefinitely. And remember, if you're getting around that 125 150 grams a day from just a mix of sources then you're okay. Then you can kind of just set your brain off and go and live life and be happy and not like obsessed over it.

Robb: Very cool. Doc...

Michael: Yeah, one or two things. I made a note of this and I wanted to mention this. One of the things of course I see in practices, sometimes it's not that I have to give a patient something in practice. it's I have to get them to stop taking so much stuff. One of the things that you'll see in some of the more medical based gastroenterology literature is they call it a drug holiday. And what they do is they will not re-up a prescription for a patient. They will wait two weeks before re-upping a prescription for a patient so I put them on this drug holiday to establish if the patient actually really needs the drug.

And that's something I do in the clinic. I don't call it that but what I try to do is as soon as patient's feeling better, I start to take them off these things that I have in their therapeutic program and the dialogue we'll have is okay, you seem to be doing pretty good right now. We're going to take you off of these herbs to help balance out your female hormones and let me know if you notice a regression in all your improvements and then we can put you back on it.

But my approach is to try to get people – to try to do an intensive window of therapy and then get them off as much stuff as possible. But I think sometimes you hear about all these people talking about this is good for them, that is good for this, yada, yada, yada and some of the patients that come in to me are literally on like 15 to 20 things. And that's really not healthy.

And so what I like to challenge the people listening with is try doing a supplement holiday. And try going off of a supplement for two weeks and see if you notice a regression, any kind of regression or your regression specific to what that's supplement's supposed to help. And if you don't, then you may not need it. And the reasons why I make that recommendation is because a lot of these things aren't meant to be used in the long term.

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And so you can potentially be doing some damage when you take a lot of supplements long term. So that's just one thing I want to throw out there for people FYI. Of course if you have some kind of condition, you're taking something under a doctor's supervision, don't do any of this without okaying it with them. But if you have things yourself, you're prescribing yourself, try a periodic supplement holiday and see if you still feel okay. And if you do, you probably repaired whatever the undergoing issue is and you probably don't really need to be taking this stuff and you can just focus on food and lifestyle and just enjoy yourself and save that money.

Robb: So the 50 kilos potato starch that I have I may need to convert into vodka at this point.

Michael: It'd probably be pretty fun if you did it Robb.

Robb: Yeah. That's true. I think that's – I keep saying when I'm done selling health it's going to be hookers, cocaine and booze. So that's where the potato starch is going – no, that's great advice and I've had really good success putting in some things like the potato starch but it had not occurred to me to phase that out and just see if relying on food was going to produce the same benefit for me. That had never even occurred to me.

Michael: I think what happens with some people is they hear about whatever the thing that was in vogue like three years ago, they hear about that and they go on it and then a few months later something else is in vogue and then a few months later something else is in vogue and so you just accrue all this stuff. And yeah, so hopefully some people will just try to curtail what they're doing because there's nothing else. I mean you can just save yourself some money and use that money for booze, hookers and contain.

Robb: Exactly. Buy the Ruscio-Wolfe potato starch vodka. It would be like \$100 a bottle or something like that.

Michael: Coming soon.

Robb: Yeah. Coming soon to a broken down 7-11 near you. Perfect.

Michael: Robb, I don't know how much more time we have but I had a couple tidbits on SIBO and then a couple tidbits on gastroparesis if we have more time.

Robb: Let's do it. Absolutely.

Michael: Okay. I guess I'll start off with SIBO. I really have to give Dr. Cybecker Dr. Pimentel a heart hat tip because they were kind of the two female people at the recent symposium on SIBO and just a lot of great stuff so I just really want to thank them for all the great information that they put out. Some of the things that I've come across from the SIBO symposium and then from incorporating some of that stuff into the clinic, I am now using the National College of Naturopathic Medicine's SIBO analysis. I really, really like it.

I have been using Geneva in the past and again hopefully I won't get any hate mail from Geneva but I have to say that the National College of Naturopathic Medicine is quenched on blood test for SIBO just seems to be a much better test and I'm just getting results that seem a clinical picture much more closely.

So that's been really helpful and making my life easier and also they do have insurance billing option too. It's only \$155 test to begin with so it's not really expensive. But functional medicine can get expensive very quick if you're not trying to keep the cost low. So I try to really cut cost wherever I can. So this being a good test A and having insurance billing option B has been great.

And something else regarding SIBO and this was presented by Dr. Pimentel. It's what he's kind of currently researching right now and there's been research for the past several years but there's this entity known as post infectious IBS and I'm sure you've heard of that Robb. Someone has about of gastroenteritis throwing up diarrhea what have you and then they have IBS persist after that.

So post infectious IBS is a recognized clinical entity. What Dr. Pimentel has done she's actually identified some of the mechanisms that are happening under the hood during that and what it appears happens is certain infections, certain gastrointestinal bugs will cause a release of this it's called Cytotoxic Distending Toxin or CDT.

And CDT can actually cross react with glial cells or nerve cells in the lining of the gut and also attack another issue known as viculin which essentially causes auto immunity against gastrointestinal tissues that interferes with peristalsis or what's also known as the migratory motor complex. And why this is important is these things all potentiate SIBO.

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SIBO or small intestinal bacterial overgrowth is found in upwards of 80% of patients with IBS and what actually may happen is when it's post infections IBS people have a gut infection. That gut infection causes autoimmunity against gastro intestinal tissue and then you no longer have the proper ability of the muscular layer in the intestines to contract, to push foods through. And when food does not get pushed through, it becomes stagnant and it's kind of like stagnant water fosters bacteria, well stagnant food also fosters bacteria. And so then you have SIBO.

Robb: Interesting and how long until the...

Michael: The underlying mechanism may be auto immune in short.

Robb: In this short-term. And for most people that's going to resolve within a couple of weeks but this could also be a – a lot of my problems, I think I had some low grade GI problems throughout my whole life I've never really tolerated dairy that well. I don't think I tolerated wheat that well but it wasn't until I had actually a GRD infection in my mid 20s that the wheels just completely feel off the wagon and I was never really the same.

After that it's only been I would say honestly maybe the last nine months to a year when I've been playing with resistant starch doing some homeostatic soil organisms via prebiotics and a couple of other outfits that I would say similar to that guide works like 70% 80% like it was in that 80 to 90% range for a long time and I feel like this last little piece has kind of 95 close to 100% there like my digestion, I'm pooping like a teenager again.

But it was super gnarly case of giardia which ended up going misdiagnosed the first round when I went to get a nova and parasite and I ended up losing 35 almost 40 pounds. I was basically like chronic wasting disease by the time we really figured this thing out. So I had a really long

standing very active infection which has taken me almost 15 going on 20 years to really get back to the health I had before that.

Michael: Yeah. So probably what happened with you Robb and I don't know everything but you probably have this post infectious kind of IBS and really what's probably happening underneath the surface was SIBO and over time with your healthy diet, lifestyle and then using other Crohn's probiotic you can probably just kind of successfully rebalanced yourself.

Robb: Right. 20 years of balancing, it's been awesome. But I've never had a Doctor Ruscio to figure this stuff out with me. I largely cobbled this together. The knowledge that we have on this topic today, most of the people who read like follow your website, read my blog, they have so much more information than most the top level clinicians had 10 years ago. It's pretty remarkable.

Michael: It really is amazing. In the office that I work, there's another doctor that kind of does some weight loss stuff and I remember a patient that came in that listens to your podcast to see him and he referred her to me and he pulled me aside he's like I'm afraid to even talk to this patient. She's way too freaking smart.

Robb: It's hard to sell to stay up on stuff. Like other folks they'll balance around to Kresser's blog, your blog, Stefan Gianni's blog and all of the sudden they've got questions and understanding that I'm kind of like I don't know, maybe you should be running the show. I'm ready to checkout. You can take over the reins of this thing. It's super cool in a lot of ways because it can be challenging too because like you said, there's a tendency of getting in and doing a lot of self diagnosis. But without the right lab work at the right time and being able to really have an adjective kind of measure for okay, is this working, is it not working, then you can spin your wheels for a long time.

Michael: Exactly. And that's exactly what I did. I spent months and months treating what I thought was hypo thyroid and low testosterone with all these herbs and other things and just stuck with my clinician and gone back to them for a follow and gotten retargeted I would've gotten through and a lot more quickly so yeah, sometimes it's better to just go with someone objective. There's a little saying the...

[0:55:00]

Robb: [Cross-talk] Yeah.

Michael: Exactly. Same thing. The doctor treats himself as a whole other patient.

Robb: Exactly. Doc, you've got a new podcast coming out here soon. Right?

Michael: Yeah. Thanks for reminding me about that. I'm trying to get a podcast going here. I'm planning on launching it within the next few months. Essentially the way I'm looking to setup the podcast is just going to be half of me just kind of rambling about all the research and reading that I'm doing because there's so much great stuff. I come across – I want to get more the information out to people and I don't have the time to do a video or an article about everything that I come across so I figured this would be a way for me to kind of leverage my ability to get information out there.

So the first sample I'll be just sharing information and stuff that I've noticed in the clinic and all that kind of thing and then the other half will be kind of the Q&A where people can be call in or write in with questions. But I'm looking for a host. So if people want to apply to become the host, they can go to tiny.cc/drruscio and they'll see an application there and instructions for taking the next step.

Robb: Very cool. And doc, just make sure to ping that to Squatchy and we'll get it in the show notes tool.

Michael: Cool. Thank you.

Robb: Awesome. Well doc it's always fantastic having you on. Anything else that people need to think about until our next installment of gut related fun?

Michael: Yeah. One quick thing on gastroparesis that I wanted to touch on. Gastroparesis is a condition where people will have a lot of nausea, a lot of throwing up, they feel like their stomach is full really easily and what can happen is they can have partial paralysis of the muscles and the lining of the stomach that contracts and push the food into the small intestine. And it seems like the people don't really have a ton of great options because the drugs that are used to treat it are called pro kinetics but some of them can have a pretty hefty side effect profile.

There's actually been a few studies looking at ginger as a pro kinetic, actually a few human trials and while they're not the largest – most

impressive trials in the world, there is some data suggestions that ginger may be a pretty effective pro kinetic which would help people with the condition of gastroparesis. And then something else that people can do to try to kind of self diagnose to at home see if they do have this condition, gastroparesis if food is liquefied then there doesn't seem to be an issue with emptying the gastric contents.

So if people for a couple days were to – and I know this doesn't sound like the most attractive thing in the world, but if they were to blend up and liquefy their food and they noticed they got remarkably better, so that would tell them that they probably have gastroparesis at the cause of their nausea, vomiting and stomach bloating. So that may just kind of help get them on the right path.

And like I said, ginger can be used but you have to be careful because you can't just use any kind of herb or cumin actually seems to make gastroparesis worse. My thinking was well ginger's an anti-inflammatory, what about other anti-inflammatories so I went to pub med and I pulled up some papers on curcumin and actually makes to make gastroparesis worse or delay stomach emptying.

So you have to be careful but then also butyrate, butyrate supplementation or food that's feed butyrate may also make gastroparesis worse. So just a few kind of tidbits there on gastroparesis that there's people out there who are suffering with those symptoms.

Robb: Doc, any quick sense of what is maybe an underlying cause with the gastroparesis or maybe the primary factors there?

Michael: Well, a large part of gastroparesis is known to be idiopathic meaning that we don't know. Second to that would be diabetic gastroparesis so when people have diabetes, high blood sugar can cause inflammation and damage to nervous tissue so diabetes is probably the most well known cause and then there's also this phenomena known as – which much, much of a lesser issue is. Post viral gastroparesis which may kind of be similar to the post infectious IBS.

Robb: Interesting.

Michael: Where the infections – I mean I'm speculating there a little bit but that's an option and also if these people have some kind of gastric bypass or

any kind of gastric surgery then gastroparesis can be a complication of one of those procedures.

Robb: Gotcha. Well I mean it doesn't make a – it's not hugely surpassing that one form of infection depending on the tissues effected and the location in the GI track might lead to IBS type symptoms that might be kind of almost a loose stool kind of manifestation whereas the other one would be more gastroparesis vomiting and you know, feeding into some small intestinal bacterial overgrowth type stuff because the food isn't really moving through with the right rate.

I mean when you think of it again, it's speculative but it's not entirely surprising that's similar or even same kind of cause of the mechanism may affect things differently depending on the location of the person and what not which again complicates the clinical picture quite a bit.

Michael: It's the gut issues are kind of the pinnacle of practice I think. They're the most rewarding but they're also the most challenging in some cases so I guess that's just the gut for you. It's a mixed bag.

Robb: We need to do some genetic engineering and just get chloroplast and we'll start making food from the sun and everybody moves to [Cross-talk] and good so...

Michael: Yeah. You know what else we can do, have you seen the movie The Internship where they talk about being stricken down into guys that just fit into a blender and then when they get out of the blender, they're going to go into a little mini submarine and go inside your body and help fight disease. Did you see that?

Robb: Yeah.

Michael: We can shrink down Robb and we can do an hourly rate we'll just go inside someone's blood stream and just fight pathogens.

Robb: I say that we start company and shrink other people. That's my vote on that.

Michael: That's a good idea. I'm already small enough. I can't afford to lose anything anymore.

Robb: Doc it was great having you on again and we'll get that link up for a perspective show host and you said again maybe a couple of months out on your podcast.

Michael: Yeah, a couple months out, I'm working on it. It's a contingent upon my new website which has been an absolute train wreck to try to get that thing up and going so as soon as I get a competent web developer who can actually finish the site, the site will be done and the podcast will be on the heels of that.

Robb: Sweet. I mean you live near Silicon Valley I guess everybody's working on Twitter and Facebook and nobody does websites anymore.

Michael: Exactly or I just have terrible luck with finding someone but yeah and the other thing going on is I'll be at AHS this year speaking on the gut so that should be cool, it's up at UC Berkley this year at my backyard.

Robb: Awesome. Very cool. That one I unfortunately will not be attending because I'll probably be changing second round of diapers about that time so I'll miss seeing you there but folks definitely should get in on that particularly if you're on the west coast. It travels a whole lot easier. I guarantee you that.

Michael: Absolutely well cool Robb, thanks for having me on and hopefully people got some good information they can use from the call.

Robb: Guaranteed. We'll look forward to having you on again.

Michael: Absolutely. Thanks again.

Robb: Awesome doc. Talk to you soon. Bye.

Michael: Bye.

[1:03:57] End of Audio