ADAPT PTP Q&A with Chris Kresser

Monday, April 26, 2021

1. Have you known Functional Medicine to be effective in restoring hair loss, whether directly or indirectly? You mention nutrition, including Biotin. Is this specifically effective for hair loss? (0:58)
2. You mentioned fermented cod liver oil as a possible problem for people with amine intolerance. Which amines are present in it, and does non-fermented cod liver oil present the same problem? (3:25)
3. What do you think about the COVID-19 vaccine? (4:51)
4. What are some other medications beyond [proton-pump inhibitors[(PPIs) and [non-steroidal anti-inflammatory drugs] (NSAIDs) that decrease hydrochloric acid production in the stomach? (7:05)
5. My wife and I are loving the ADAPT Practitioner [Training] Program so far. What are some of your favorite Functional Medicine journals? Thanks. (8:10)
6. You mentioned labor and organ meats as a problem for mast cell activation disorder. What's the mechanism here, and are the freeze-dried organ meat capsules potential offenders in this population, too? (13:02)
7. In treating methane-predominant [small intestinal bacterial overgrowth[(SIBO), would it be rifaximin plus neomycin plus Atrantil? Or could you use Atrantil to substitute for neomycin? (15:26)
8. Can you use partially hydrolyzed guar gum as part of the SIBO treatment? (17:07)
9. Is the only way to receive the benefit of resistant starch from plantains in the form of green plantain flour or dehydrated? Or is it similar to white potatoes in that if they're cooked and cooled, the resistant starch forms? (21:49)
10. [I] had a patient [who was] intolerant to glutamine. Is this typical for patients to react to? (24:30)
11. Do you test [the] metabolite form of vitamin D or active form? Which do you use for dosing patients, supplemental D? (27:26)
12. In a [complete blood count] (CBC) with [differential] (diff), what are the major differences between identifying a bacterial gut issue versus a viral gut issue? (30:38)

Chris Kresser: Hey, everybody. Welcome to the ADAPT Practitioner Training [Program] Q&A for April. End of April here, and yet there is a huge snowstorm happening outside my window right now. Not the window you see behind my head, which is not actually where I am right now. That's my office in Berkeley. I'm in Park City where it is snowing at the end of April. That's spring in Utah. So [I] hope you're all doing well. You know the drill at this point. I'm going to go

ahead, and people who are on the live call can put a question in the chat box. I will also dive into answering some of the questions that were sent in ahead of time.

So [the] first question is from Richard. He asks, "Have you known Functional Medicine to be effective in restoring hair loss, whether directly or indirectly? You mention nutrition, including Biotin. Is this specifically effective for hair loss?"

Great question, and I would say it depends on the cause. So, for male pattern baldness, I don't see great results with Functional Medicine. For hair loss, for example, that's occurring in women with hypothyroidism, Functional Medicine can actually work very well. I think that from a Functional Medicine perspective, setting aside a genetic predisposition to baldness, for example, in men, the two most common causes of hair loss in my experience are hypothyroidism, which is the one that most people tend to think of, but also inflammation. Inflammation is a lesser known, but I think very significant cause of hair loss for both men and women.

So from a Functional Medicine perspective, if we're able to identify and then address the causes of inflammation, then we can have some success in reversing hair loss. And then, of course, nutrition is very important. Biotin is an essential nutrient for the hair and also the skin and the nails. So that can be helpful for hair loss. But again, functionally, we want to avoid the tendency to just think of a problem, like hair loss, and then think of a supplement that can help. Although we certainly want to use those things that can help. We also want to think more systematically, like what are the underlying causes that might be present that are leading to this hair loss. And Biotin might be a part of that if there's a nutritional cause, but there might be other causes like poor thyroid function, or many different potential causes of inflammation.

Okay, so also on the live call, I forgot to mention if anyone wants to come on the call and say hello on the video call and ask your question that way, you're welcome to do that. And the way to do [it is] just to raise your hand.

Anonymous says, "You mentioned fermented cod liver oil as a possible problem for people with amine intolerance. Which amines are present in it, and does non-fermented cod liver oil present the same problem?"

Good question. It's mostly tyramine, but also some histamine. And non-fermented cod liver oil does not present the same problem. At this point, I generally don't suggest fermented cod liver oil. I think just what we might call an extroversion cod liver oil, like from Rosita or Nordic Naturals, there are several brands, I think those are a better option for most people.

The Green Pasture product I've lost a lot of confidence in. I think the founder of that company is not transparent enough with their testing, and I've had several interactions with him that have left me with a pretty bad taste in my mouth about that company and their practices. And so, and I don't think there's any compelling argument for fermented versus non-fermented cod liver

oil. And non-fermented cod liver oil is much more readily available; it doesn't taste quite as bad, although it will never be known for its good taste, at least for most people. So yeah, I think for all those reasons, just going with non-fermented cod liver oil is the best option.

Jennifer asked, "What I think about the COVID-19 vaccine."

That's a big question that we could spend several of these Q&As discussing. The Institute for Functional Medicine [(IFM)] did a great webinar on the COVID-19 vaccines. So Katie, if you can dig that up and put it in the chat, or we can send it out to folks later, I think that would be my recommendation is to watch that. It was really well-researched and it was comprehensive, and I think also pretty open-minded and balanced as to the benefits and the risks.

In general, I will tell you that I think the COVID-19 vaccines have been a pretty remarkable achievement of science. And I think, for the most part, they're very effective and the risk of adverse effects is very low. And that's what you want to achieve with the design of any vaccine. I think there are still, of course, a lot of lingering questions, like how long does the vaccine-induced immunity last? Will it be effective and safe for populations like pregnant women and children? Is it as effective against some of the new variants that we're seeing, which there's now some research suggesting that although efficacy is reduced somewhat, it's still quite effective? Might there be long-term adverse effects that we're not yet aware of because the vaccines have only been in use for a few months?

So still a lot of questions to answer. But that's a general impression. And again, I think if you just Google Institute for Functional Medicine, COVID-19 vaccines, you might be able to find that.

[The] next question is from Stephanie, and she's wondering about, "Other medications beyond PPIs and NSAIDs that decrease hydrochloric acid production in the stomach."

Those are the main offenders. There are others that have a more minor effect, but those are definitely the primary contributors. And in fact, some PPIs have been shown to suppress stomach acid almost to zero. So they can have not just a small effect, but a very dramatic effect. And we covered all of the potential negative downstream effects of completely suppressed stomach acid production in the training. And that's one of the reasons, I think, why these drugs were never approved for more than two weeks of use. That's still the case, and yet they are used off-label for decades in many cases. So [it's] just something to be aware of as practitioners.

Okay, next question from David. "My wife and I are loving the ADAPT Practitioner [Training] Program so far." That's fantastic, David. Happy to hear it. **"What are some of your favorite Functional Medicine journals? Thanks."**

There aren't really dedicated Functional Medicine journals, at least peer reviewed journals at this point. This is a topic or a question that often comes up in the discussion of Functional Medicine, and there's often a criticism of Functional Medicine because it's not, as not being evidence-based. And what I always say to that is Functional Medicine is not a thing that you study. It's a paradigm or a perspective or an approach. So I would come back and say, "Where are the studies supporting conventional medicine?"

If you type conventional medicine into PubMed, you're not going to get very many results just as you won't if you type Functional Medicine, because those are paradigms or lenses or perspectives on how to approach medicine. But if you understand that Functional Medicine is a systems-based approach to health and healing and involves identifying and addressing the root cause of a problem, you quickly then learn that there are thousands and thousands, hundreds of thousands of studies that serve as the evidence base for Functional Medicine.

So for example, I'll just rattle off a couple [of] examples off the top of my head. From a conventional perspective, [irritable bowel syndrome] (IBS) is just a poorly defined grouping of signs and symptoms with no clear etiology or cause, and the treatments are mostly based on symptom suppression. So if someone's got diarrhea, you give them Imodium. If they have constipation, they're getting some prokinetic, promotility agent. If they have pain, they might be prescribed some antispasmodic. They're often prescribed [a selective serotonin reuptake inhibitor] (SSRI). From a Functional Medicine perspective, though, we look at all of the possible root causes of the irritated bowel. And that could include things like small intestinal bacterial overgrowth, undetected parasite infections, fungal overgrowth, disrupted gut microbiome, gut–brain access issues, etc. And if you look for studies on any of those things that I just mentioned, you're going to find hundreds, if not thousands of them. So all of those studies support a Functional Medicine perspective.

There is a need, I think, to collate and organize studies like that, that support a functional point of view. But to my knowledge, there hasn't really been a concerted effort to do that with a journal. Examine.com, which I think some of you are familiar with, is a great compilation of studies, and the researchers behind that tend to look at things, they may not identify it as functional, but they tend to look at things from that approach. And it's a great resource. I subscribe [to it] myself and I often recommend it.

All right, so going back to, oh, on that note too, actually I just mentioned that IFM, they sent out an email recently. Mark Hyman and Cleveland Clinic published a study in *BMJ Open*, which was the first of its kind. It demonstrated that Functional Medicine-based care delivered in a shared medical appointment setting like a group setting improves patient outcomes at [a] lower cost than to the healthcare system. So I'm going to link to the study in the chat box and give me a second here. So despite what I said before, that there are typically not explicit Functional Medicine studies or journals that cover those studies, there are actually a growing number of studies that are looking at it from this perspective and explicitly examining Functional Medicine

as a model of care. Oops, I just sent that to panelists. So Katie, maybe you could send that to all of the attendees.

Okay, Theresa. "You mentioned labor and organ meats as a problem for mast cell activation disorder. What's the mechanism here, and are the freeze-dried organ meat capsules potential offenders in this population, too?"

It won't always be a problem, but in some cases, when people have severe [medium-chain acyl-CoA dehydrogenase] (MCAD) [deficiency], they only do well eating very, very fresh meat. And meats and fish with lower histamine levels tend to be better and easier for them to tolerate than meats and fish with higher histamine levels. And organ meats anecdotally, I've seen some evidence that they may be higher in histamine than some muscle meats. And I also think they're harder to get really fresh. So often, people are buying them frozen or not buying them super fresh. So those are two issues.

The freeze-dried organ meat capsules tend to be better in part because usually, they are frozen and then freeze-dried very soon after the animal is slaughtered. So I've seen in my patient population that generally, they tend to be better tolerated than the fresh organ meats for people that have significant histamine intolerance issues, which I mentioned. Even if people had some mild intolerance, that may not be an issue in those cases.

Okay. Let's see here. I'm going to go back to the questions that were sent in. So this question from Sam, some of these are a little bit old, actually. So I think they may have been answered. Maybe they weren't cleared off the sheet, Katie, because some of these are going back to December or January of last year, and I'm guessing they've already been answered.

But one is from Sam about treatment of methane-predominant SIBO where the pharmaceutical treatment is typically rifaximin plus neomycin. He's asking, "Would it be rifaximin plus neomycin plus Atrantil? Or could you use Atrantil to substitute for neomycin?"

And the answer is that there's no 100 percent sure way of doing this in any particular patient. The gold standard is rifaximin plus neomycin. We started adding Atrantil in cases where the SIBO was quite severe, the methane was really high, and/or the person had already been treated in the past and maybe had had some success. But not as much as they would like or we would have liked. And so, in those cases, we add Atrantil.

In some cases, we might substitute Atrantil for neomycin, and that might occur if maybe the patient has taken neomycin before, they had a negative reaction to it. Maybe they're worried about the black box warning, although, as I explained in the training, I don't think that's a cause for concern when it's taken orally and there's no preexisting kidney disease. Or maybe they just want to minimize their use of antibiotics as much as possible, which is fair enough. So you can do it either of those ways. It really should depend on the particular situation.

Okay, this question [is] from Stephanie, "It's about partially hydrolyzed guar gum as part of the SIBO treatment."

And it's a good question because at one point, I was recommending it based on a couple of studies, which suggested that taking partially hydrolyzed guar gum during SIBO treatment would increase the efficacy of the treatment. And the mechanism there was that it's that whole got to feed them to kill them idea that I talked about with Dr. Pimentel way back, many years ago. Probably the first or second time I had him on the show; I think he's been on the show four times now. And that's a fundamental principle in microbiology; he didn't make it up. He was just bringing it over to the SIBO treatment. And the idea is that if you starve bacteria with diet while you're taking antibiotics that are designed to kill the bacteria, bacteria are pretty hearty and adaptive organisms, and they have figured out ways to survive over hundreds and hundreds of millions of years. And if they're starving, they'll go into a dormant state, which actually then protects them from the antibiotics or herbal antimicrobials.

So the idea is that rather than going on like a strict low-FODMAP diet during treatment, that you would not necessarily just go crazy on FODMAPs, but not try to restrict them too much. And then the partially hydrolyzed guar gum as a soluble fiber would be something that would actually provide a food source for the bacteria and make sure that they didn't go dormant. So that made sense, and I think there's definitely some evidence to support that. But it turned out, and I think this is a really good example of how the different sources of information that we can use to make decisions as clinicians. I think of it as like a three-legged stool. So we have one leg, which is modern clinical research. We've got another leg, which is the ancestral end. Then we have a third leg, which is our own clinical experience. And I tend to run any decisions or clinical choices through those three different filters.

So, in this case, the modern research, clinical research was pointing toward using guar gum or some other kind of soluble fiber or higher FODMAP intake during treatment to increase the efficacy of the treatment. But in my clinical experience, having done it many years before, I learned of this doctor from Dr. Pimentel without that and then doing it for a couple of years with that, and now in the benefit of hindsight, having done it for a few years since then without it again, I can say that I don't think that taking guar gum had any positive impact on the efficacy of either the pharmaceutical or the botanical treatment. It was pretty clear that it made the treatment much more difficult to tolerate because a lot of patients with SIBO don't do well with guar gum. Even when it's partially hydrolyzed, it causes a lot of gas and bloating and discomfort. And so we basically abandoned it after a couple of years of experimenting with it.

And now, we just tell patients, we don't advise a super strict low-FODMAP diet during treatment, nor do we advise purposely eating a lot more FODMAPs than they would normally eat. If they find that they eat garlic, for example, and onions and feel a lot of pain and distress, then sure, we would suggest continuing to avoid those during the treatment process. But if they can eat other FODMAPs and subjectively, they don't have any negative symptoms, then

we don't recommend limiting those foods during the treatment either. And that's over the years proven to be the best approach in my experience.

Okay, next question is from Theresa. "Is the only way to receive the benefit of resistant starch from plantains in the form of green plantain flour or dehydrated? Or is it similar to white potatoes in that if they're cooked and cooled, the resistant starch forms?"

That's a really good question. I don't think it has quite the same effect. But I imagine there is some formation of resistant starch when plantains cool. And one of the easiest ways to subjectively know this or experience it is if you've ever cooked a potato and then put it in the fridge and then tried to eat it that way without warming it up again, or even with warming it up again, you know that the texture is different, right? The potato is a bit more rubbery. And, if you tried to mash it with a fork and put some oil or butter in it, it's not the same as when the potato is freshly cooked. And that's the same with plantains.

If you cook plantains, and then you leave them and let them cool, the texture will also change, and what's happening there is the formation of resistant starch. But I have never seen any comparative or analytical data suggesting how much resistant starch forms when plantains cool in the same way that I've seen that with potatoes.

Okay, any other questions from folks on the live call? We have gotten through the questions that have been sent in and [I'm] not seeing any questions left in the queue. So I will just pause for a moment while you all can gather your thoughts. And then I'm just going to zip over here and see if there are any other more recent questions that have been sent in. [I] lost that page. Okay, I think we did get through all the questions that were sent in in advance. And if there are no other questions, and if no one is keen to come on and ask a question that way. Oh, wait, there's one more. It just came in.

It's from Teresa, as well. "[I] had a patient [who was] intolerant to glutamine. Is this typical for patients to react to?"

Yeah, glutamine is actually pretty typical; it's not unusual for people to react to glutamine. And I think where I see this the most is in kids and even adults with behavioral disorders. Anything from [attention-deficit/hyperactivity disorder] to autism spectrum disorders to [obsessive-compulsive disorder], glutamine, which breaks down into glutamate, is what's known as an excitatory neurotransmitter. So it's pretty self-explanatory what that means. GABA, which I know you're all familiar with, is a major inhibitory neurotransmitter, and that's why it's useful for anxiety and people who are having trouble sleeping. Whereas glutamine and glutamate are excitatory neurotransmitters and may actually have the opposite effect. They really wire us and activate us. And so, you could imagine how too much glutamate in some cases, glutamine breaking down into glutamate could be a problem for kids or adults with behavioral disorders.

There's an interesting paper [that's] from back in 2015 on chronic glutamate toxicity and neurodegenerative diseases. And the two authors talked about the role of chronic excitotoxicity. As I just mentioned, glutamate has an exciting effect on neurotransmitters. So they speculate on the role in a lot of different neurodegenerative disorders like [amyotrophic lateral sclerosis], Alzheimer's [disease], and Huntington's disease, so above and beyond the behavioral disorders that I mentioned. I'm going to put this in the chat, as well. Okay, so that's the study in PubMed. And I think one way, it's just something to be aware of and keep an eye out for. Glutamine, as you know, is often used for healing the gut barrier, sometimes at very high doses. So if you have a patient and you're using that for that reason, or you have a patient that was prescribed glutamine by another practitioner and had a big reaction to it, that could be one of the primary reasons for it.

Anonymous asks, "Do you test [the] metabolite form of vitamin D or active form? Which do you use for dosing patients, supplemental D?"

So we use a combination of markers for testing, screening for biological vitamin D sufficiency. So 25 D, which is the precursor form [of] 125 D, which is the active form and parathyroid hormone. All of those actually can be used in concert to get the [clearest] picture of what's happening with biological vitamin D activity. And the good news is, we're going to go into great detail on that later in the course. And there's a whole segment on it. And it's actually a fairly complicated topic, so I won't try to break it down here in all of the details, especially because you're going to come to that.

But the short version is 25 D alone can be misleading for a number of reasons. First, there are genetic and ethnic differences, and lots of other factors that determine how well 25 D is converted into the active form 125 D. So you can take 10 different people who all have a 25 D level of 30, and you'll find that they all have different 125 D levels based on all of those individual factors. And that means that you can't just test 25 D and know with only that marker, what's going on. 125 D can help, but it shouldn't be used on its own either, because it's affected by other things besides vitamin D. It's affected by calcium; it's affected by autoimmune conditions that will vary 125 D levels. And so you can't use that as the only marker that you're looking at.

And then parathyroid hormone is a good functional marker of vitamin D status. Generally speaking, again there's more nuance here, but just as a general rule, if [parathyroid hormone] is 30 or below, then there is adequate biological vitamin D activity. If it's higher, 40, 50, 60, and the patient doesn't have hyperparathyroidism, it's caught pushing that level up, then it could mean that even if their 25 D level is normal, they don't have adequate levels of biological vitamin D activity. Because one of the things that vitamin D would do would be to suppress parathyroid hormone production.

I suspect that in the coming years, we're going to have more accurate and convenient methods of answering this question. Right now, this is the best we've got. And we will definitely train you in how to use those markers.

So Amanda asked, "In a CBC with diff, what are the major differences between identifying a bacterial gut issue versus a viral gut issue?"

The common way that that question is answered is you'll often see neutrophils higher in bacterial infections, whereas your C lymphocyte is higher in viral infections. But I don't think that's a reliable guide on its own. It would lead me to do some further diagnosis, but I would never diagnose a patient, like differentiate between a viral or a bacterial pathogen solely on the basis of those markers alone. I think it's just part of the overall pattern that we would be looking for.

Okay, anybody else? [I'll] just give it another minute or two. Okay well, thanks everybody for your questions. I hope you're continuing to enjoy the course, and [I] look forward to seeing you at the next Q&A. Keep sending in your questions in between sessions, and Tracey and I will be happy to answer them. Take care, everybody. Thanks again.