Hello everyone. Good afternoon and welcome to today's mini clinical course on conquering constipation. My name is Tracy Harrison, and I am delighted that you are making time to join us live today. This is a special presentation from the School of Applied Functional Medicine. I know that today on the line we've got a rich diversity in our audience. We have a number of our students, some current first semester students in Core 101 program and then also students who've been with us, two, three, five or more years, who are hoping to pick up some additional clinical tips. And then of course we have many of you who are perhaps brand new to us here at the School of Applied Functional Medicine. Perhaps you're relatively new to functional medicine. Perhaps you are a seasoned practitioner and you're just looking, as perhaps we all are as practitioners, for more and more practical pearls on how to implement, how to use functional medicine in everyday practice.

Before we get started here, if a couple of you would not mind chiming in on the questions tab. If you're not familiar with gotowebinar as a posting tool, you'll see that there's a little tab there that says questions, which you are more than welcome to use at any point in order to type in your questions and comments. In order to have good, efficient use of our time, we don't have an open sort of voice to voice Q and A period. Instead, I encourage you to type in your questions as we go, and I will do my best to seed my comments with answers to your questions. Plus I have some of our team members, advanced practitioners that support us here at the School of Applied Functional Medicine who can help you by responding to some of your questions by typing in answers.

So my biggest goal in today's session, I want to say up front, is to really give you value. This mini course over the next hour is going to be a very quick and intense deep dive. I hope you fasten your seatbelt. We're going to be covering a lot of material fairly quickly. We are recording today's session, and we will make both the slides as well as a recording of the session available to you for review.

A concept that we talk about quite a bit here at SAFM is repetition breeds retention, super important when we're looking at the myriad factoids that can be valuable in the world of functional medicine science, that we commit to the importance of ongoing learning. So I'm going to cover a lot of material today, probably more quickly than you can absorb it the first time through, but knowing that you'll have an opportunity to not only take notes but to reference the archives afterwards. So this, as I said before, is a mini clinical course. I'll tell you a little bit at the end of today's presentation about our offerings here at the School of Applied Functional Medicine. But we currently offer our signature semester programs as well. I believe the latest count is 17 deep dive clinical courses, which are two and a half hour webinars that do a real deep dive into a particular area of disease and go into rich detail about the physiology, the biochemistry, the imbalances, the blockages, the genetics, medications, the supplements, the lab work, all of the different clinical aspects that you need to be of practical value to the patients and clients you serve.

Here at SAFM, our student population is incredibly diverse. All of our students are active practitioners. They include anything from nurse practitioners and physicians to nutritionists and dieticians, health coaches and health educators, midwives, pharmacists, body work specialists, physical therapists, you name it and it's a really delightfully diverse family of healthcare practitioners. And so regardless of the
modality that you teach from, you are very welcome today. And indeed, everyone who is registered for today's webinar will receive the ability to access the archives. No worries. You do not need to be a current student to do so. But I want to go ahead and dive in and get us started here because today I want to talk about constipation, which may seem like a very small, targeted area of frustration, imbalance, a symptom if you will. But I want to talk more about the concept of constipation being first of all a sign of imbalance or blockage or dysfunction from a whole host of different areas in the body. It can be a very critical red flag, a wakeup call that goes way beyond the gut. But what might surprise you is I also think that the notion of constipation is a fabulous business opportunity for you, and I'm going to describe more of that in just a moment.

But I want to start with just a few key principles, and I'm going to move through these quickly in the interest of time. But especially for those of you who may be relatively new to functional medicine, perhaps you've been in conventional practice for a long time, we well know that the people who usually seek us out for support, especially in the world of functional medicine, have often been to multiple conventional medical practitioners toward the goal of getting some relief. And you can't really go to a web page or pick up a newspaper or magazine without learning about yet another thing that can go wrong with the human body. There are over 14,000 different combinations and permutations of bad stuff, if you will, that are diagnosable. And of course, as individuals, our patients and clients can easily become overwhelmed. I had someone say to me one time, "Good God, I'm going to stop reading the paper, 'cause I'm tired of learning things I can die from." No surprise of course that people can easily feel overwhelmed and perhaps even more discouragingly, they can feel very disempowered about their own wellness and hence their willingness or their defaults of abdicating responsibility and management of their wellness to someone else. But in the world of functional medicine, we well understand that it's not so much a single body part that all by itself becomes diseased or dysfunctional. We know that everything, not only in the body, but in our entire life system, is interconnected in the same sense that this little Bonsai tree, the leaf is not separate from the branch, is not separate from the roots or the dirt or the quality of the air surrounding it or the water that is taken in or the presence of oxygen or lack thereof. Everything is interconnected in the body, not just physiologically, not just physically, but also mentally, emotionally and spiritually, a key concept of functional medicine that's very well acknowledged in this approach to medicine.

And of course another key concept of functional medicine that is very applicable for today encountering what a lot of our patients might assume is that their experience of illness or wellness is largely just affected by their genes. A lot of the people we serve think this whether they say it or not. They may feel that they're just going to become a victim to what mom or dad dealt with or what grandpa or grandma died of. But of course in the world of functional medicine, we know that illness and the desire and the journey to wellness is not this simple at all. Delightfully, the people we serve have a huge opportunity to be educated, inspired and empowered to change their choices. Because our choices, our lifestyle choices directly affect our genes, and of course our environment directly affects our genes, and all of the different biochemical processes that interact in order to determine our state of wellness or illness. So I like this diagram because it reminds us that what we do matters dramatically, and therefore our work to support and empower our patients and clients with appropriate lifestyle change is hugely valuable. Most of you know that fundamentally. You know it intrinsically. But a number of the people we are serving are coming to us with a real lack of awareness. So I start with some of these fundamental concepts and I actually encourage you to use some of these slides directly in your own practice for educating the people you serve.

Now a second key principle that I want to talk for a moment about is our optimal health model. This is the concept that while there may be more than 14,000 things that one can be diagnosed with that can cause problems, various combinations of symptoms, there's actually a much more manageable, a much more straightforward combination of things that we ultimately need to do in order to create optimal health.
And in this sense, my assertion to you is that optimal health is not complicated. It may be challenging for people to implement. It may be challenging for them to actually do, and that’s why they need you. But the model of simplifying optimal health can be hugely calming and inspiring to the people that you serve. And this model is true regardless of the different aspects of wellness that we’re looking at. Even if we take a look at the concept of optimal and healthy gastrointestinal motility, which is our topic today for constipation, we know that we need to maximize what the body needs to thrive. And in the case of GI motility, we know that we need water, right? As silly and simple as it seems, a lot of the people we serve have subclinical dehydration, and we need water in order to bulk up a healthy stool that can be easily moved via peristalsis. We also need things like electrolytes. We know that the muscles lining the entire GI tract that promote optimal peristalsis required potassium and magnesium in particular, and a good balance between magnesium and calcium. In fact, an incredibly common cause of constipation is insufficient magnesium, which may go hand in hand with, in particular, women you’re serving who are using excessive calcium supplements. I can’t tell you how often I have discovered that a woman is taking 1500 or even 2000 milligrams of calcium a day, and when she backs that down to something much more reasonable like 500 milligrams, her GI motility normalizes, and she resumes having optimal bowel movements. So the proper balance across electrolytes is key, and as we’ll discuss in a moment, suboptimal magnesium is incredibly common. Magnesium deficiency is well understood to be a common nutrient problem.

But it's also true that in terms of minimizing what might be in the way, our patients with chronic constipation may struggle from things like an imbalance of microbes in the GI tract, things such as small intestinal bacterial overgrowth, which is not so much an over...it's not a pathogenic microbial problem. It's not even really truly a dysbiosis. It's the right microbes in the wrong place where we have an overgrowth of typically colonic bacterial species in the small intestines because they're over feasting on our food fodder in the small intestines. Certain microbes produce high levels of a gas called methane, and methane stimulates the enteric nervous system in the gut to produce less serotonin, serotonin a critical neurotransmitter needed for motility. And I'm going to share more about this in just a moment. But yes, a microbial imbalance in the gut can be the primary driver for constipation.

It's also true that allergies and sensitivities, for example dairy food sensitivities is a very well acknowledged driver of constipation. We have over two-thirds of our immune system in our gut and the behavior of our immune system and our gut also contributes to or detracts from motility.

We're going to talk about the dramatic effects of stress on motility via not only things such as cellular metabolism related to thyroid hormone and cortisol, but also related to the activity of the vagus nerve. So I know you're thinking, "Whoa, she's going too fast right now." That's okay. I'm just giving you an overview. I'm going to come back and revisit each of these things. But just showing you some of the things in these five simple categories that if they are not being minimized can directly contribute to all sorts of downstream disease in the people we serve including challenges with motility and constipation.

And then related to that of course is the importance of prioritizing an environment for healing. The people we serve can really struggle to do this, especially in the modern western world where we emphasize so much the importance of going and going and doing and doing and working and working. The body is not designed to be in a sympathetic dominant fight or flight mode all the time. And in fact, my assertion to you right here at the beginning is that a lack of stress, excuse me, a lack of relaxation, a lack of sufficient rest and rejuvenation to counter all our stress is a major root cause of disease in our society in general, and it's certainly a common true root cause of chronic constipation.
So this was a very simple model. This is a one pager that I've reviewed with hundreds of my own clients over the years. I can make a very inspiring one pager to simplify the face of health to talk about what an individual, unique patient might need to maximize, minimize or prioritize to improve their unique challenges. So my assertion to you is that ultimately, while there might be 14,000 different names for collections of things that go wrong, the ability to name a disease of course does not imply at all that we know what is actually causing it. And this is really where functional medicine shines. And our ability to dive deep below the surface and get beyond the diagnosis, to actually looking at the dynamics that are at play in an individual patient's challenges is ultimately what can bring them relief. It's also what can help them to finally become empowered and inspired and educated, so that they can confidently take charge of their own wellness. Now I said something earlier on about a business model. And we have other webinars that my team can help you with accessing, if you want to know more about this. But I just want to speak to the importance of using functional medicine science to do three things toward building your practice. This is about helping you as a practitioner to be wildly successful while you're wildly satisfying the patients and clients you serve. This is a model that I've seen play out hundreds of times in my own practice and across hundreds of different practitioners in our school. We have thousands of practitioners in the family here at the School of Applied Functional Medicine. And we've seen over and over again how the study of functional medicine science can really give you as the practitioner a deeper and deeper confidence in really understanding the drivers of disease and therefore strengthening your ability to not only help the people you serve to get relief but to help them actually fully get well. But using that confidence to use a two pronged approach in serving your patients, a balanced focus on rapid relief because ultimately if people don't get some pretty rapid relief from some of their most frustrating symptoms, they're going to lose not only faith in your ability to help them as a practitioner, but perhaps even more discouragingly they might lose belief in their ability to actually get well. Because it takes too long and we have a culture where people's expectations for healing time are very fast, courtesy of the pharmaceutical industry, where people believe they ought to be able to make a change and you know a Tylenol works in 20 minutes, so they figure certainly a lifestyle change certainly shouldn't need more than four of five days, right? So a rapid relief focus is huge. A common misstep for practitioners is taking way too long to help people get some relief. But also on this step can be too much focus on triage and rapid relief and not actually helping people to create sustainable wellness by really getting to the true blue causes of their challenges. But this model can really create a very powerful business model for you, because when you have people out and about in your community, not only content with your services but wildly satisfied with them, they will not stop talking about it. It's a natural notion of social proof and of reciprocity. People want to give back where they've received tremendous good. And we have many practitioners here at this school who have practices full of highly qualified referrals from prior wildly satisfied patients and clients.

So this is why I'm passionate about teaching the science of functional medicine and the practical application of it because I want you to not just mildly satisfy the people that you serve, I want you to wildly satisfy them so that they can fill your practice and free you up to not focus so much on marketing and sales and branding and putting yourself out there, but allow you to focus on doing the work that you love. And again, we have other webinars on our site that talk about this business model if you want to learn about it. But I just want to echo here the importance of seeing constipation as not only an opportunity for rapid relief, because in my experience it's one of the top three most frustrating symptoms that people are indeed delighted when you help them to alleviate the constipation in a sustainable way, but also using the symptom of constipation as a wakeup call and a pointer, an arrow on what to focus on next upstream toward addressing root causes that might not only be causing constipation but may be the root cause of other dangerous dysfunction.
So let me just pull this all together here. I'm going to talk about a lot of pointers and a lot of particular dynamics in the body, but again this is sort of a great one pager that I encourage you to copy with pride and share with your clients and patients. Because we're basically serving a whole bunch of people who don't understand why they aren't thinner or why they don't feel better or why they don't have better bowel movements, why they aren't pregnant, why their skin isn't healthier, why their joints hurt, all of these kinds of things. And it's because people are struggling dramatically with low grade subclinical disease. The people we served are stressed, toxic, inflamed, infected, malnourished, and unrested. And so what I find very interesting just thinking about the natural health of the body is that the combination of these things would be unnatural, right? We're not designed to struggle with all of these kinds of things on an ongoing basis and still experience over the top vitality. And so we have to address the former if we expect the people we serve to have the latter.

Why are we struggling? Let's make it as simple as possible. I believe we're struggling because of nutrient poor food, the fact that we live in a very toxic environment, and we're dealing with unprecedented levels of stress, emotional stress, physical stress, biochemical stress. And of course, that creates all sorts of disease in the body. And even when people are aware of the fact that they may be struggling with these things, if they're not working with a truly confident and competent practitioner like you, they're not going to get the education and inspiration and empowerment that they need to actually do something about their lives in a sustainable way.

All right, so I could talk all day about these aggregate concepts, but I just wanted a little bit of a stage setting here to dive into the detail with regard to constipation. So what are we talking about when we talk about constipation? Well, first of all we're talking about a dysfunction, at least -- the site of the dysfunction downstream is the GI tract. Its flow, gastrointestinal motility, that leads to a suboptimal number of bowel movements and perhaps the presence of incomplete or malformed bowel movements. In the GI tract, we have an astounding number of organs and glands, a very long twisted component system in the body. We have many different separate cavities that are controlled by different neurotransmitters and hormones. We very often think of the GI tract as being a place where we digest food, right? We take in food at the top of the tract and we chew it up and swallow it, and it slides down the esophagus and goes into the body's blender, and is churned down into chyme, which moves into the intestines and gets bile and enzymes and bicarbonate added. And nutrient absorption starts to happen and waste products are isolated and microbes make nutrients. We focus on the digestive aspect. But there are many, many other functions in the GI tract. So I want to encourage you to think about a broader definition of the role of the gut and the downstream impact of the gut, because in fact, the whole GI tract is actually a very weird, weird world. Rather than thinking of it as the digestive tract, I'm going to encourage you to think of it as an exchange portal, essentially a tunnel. It's kind of like the inside of a doughnut. It's actually a very well guarded and regulated portal that on many levels is actually outside of this systemic body. It's highly protected by over two-thirds of our immune system by a highly regulated membrane that is allowing nutrients in, ideally allowing nutrients in and toxins out, very selective permeability.

The entire systemic body, right, the trillions of cells in your body need this gateway for nutrients to fuel cellular metabolism. As we like to joke about here at SAFM, the body doesn't have a separate little pantry in its left butt cheek where you can just pull a little zinc if you need it or pull a little extra vitamin B6 if you need it. We have to get fuel from our food, and that's not just the macronutrients that provide calories, that's the micronutrients that fuel every biochemical conversion we need in the body. It is also the case that the GI tract, especially the colon, is the exit path for most of our toxins and waste. We also get rid of some waste via our urine and also by our respirations, and also our skin. But the GI tract via our stool is actually where we get rid of the greatest waste of waste products from the body. This includes not only what we would think of as exogenous waste, things like heavy metal toxins, or pesticides or chemical...
substances that might come in from our food or get absorbed through our skin from personal hygiene products, but also substances that are endogenously produced that the body needs to regulate levels of over time, things like cholesterol or estrogen or vitamin D. All of these things need to be highly regulated. And so the body also uses the colon as an exit path for excess quantities of a number of different biochemical substances. A build up of those waste products can actually be a true root cause for disease in the colon. We'll talk more about it in just moment. But when we are constipated and toxins build up in the body, eventually we will begin to reabsorb those toxins and put the burden back on the liver again to reprocess them, re-conjugate them all over again, increasing the toxic burden on the body. It's also true that the GI tract is really guarded by a planetary level population of microbes. There are tens of trillions of microbes in the guts with hundreds of different species. It's very much like a planet and our biochemistry is highly regulated by their behavior and also by their DNA.

And now I use this as a first introduction here for those of you new to SAFM. I am going to give you a number of different clinical study references down in the footer of our slides for further reading of some of the concepts I present if you're curious. In our full length clinical courses, I give you hundreds of different clinical references and then select typically about a dozen of them to actually pull down the PDFs for you, a more concentrated reading. But as a scientist myself, my background, I really think it's important that as practitioners we all hone the ability to do clinical research and to really be able to read studies and glean additional detail so that we don't just know the Cliffs Notes if you will, sort of a short and dirty summary version of how disease is created in the body, but we really need to thoroughly understand it. That's what's going to enable us to educate our patients and clients with confidence about what's happening in their bodies to help galvanize their empowerment.

As I said before, it's home to more than two-thirds of our immune system, which is constantly surveilling everything that we take in, everything that's on the way out. It's reacting to and being primed and conditioned by our microbial balance or lack thereof. And then another key part of the control is our selectively permeable mucosal membrane, especially in our small intestine. I'm sure most of you are very familiar with the concept of leaky gut or enhanced intestinal permeability that starts to allow too many things to get into the systemic body and is largely acknowledged in the functional medicine world to be one of the ubiquitous true root causes of chronic autoimmune activation. But it's also true that our gut houses its own nervous system, right? This is our enteric nervous system, which generates actually the vast majority of neurotransmitters in the body. Contrary to common myth, we don't produce a highest amount of neurotransmitters in our brain and central nervous system. It's produced in the enteric nervous system. This is where nearly all, about 95% of the body's serotonin is produced, which is highly important for motility, but also where more than half of our dopamine is generated. And neurotransmitter imbalance can be a huge driver for dysmotility. I also want to make sure that you understand that the connection between the brain and central nervous system and the enteric nervous system is largely mediated with a very interactive large nerve called the vagus nerve. And what shocks a lot of practitioners to learn is that 90% of the nerve fibers there are actually afferent nerve fibers meaning they're going from the gut to the brain, that the gut is highly educating the brain about the status of your world, being highly informed by a microbial population, by the status of food, nutrient density, chemical toxins, etc, medications that are coming into the gut. The brain is getting educated about our world, whether we're living in a safe, secure, nutrient dense place or are we living in a dangerous, threatening, nutrient poor space? And of course the body, very often, when it starts struggling with what we label as disease is simply a natural reflection of the fact that the body is under attack. It feels threatened. And it's responding accordingly. So when we talk about the site of bowel movements, most of his think right away about the anus or maybe a little bit upstream to the rectum. But when we think about the notion of the colon overall, which is really where a stool is collected and is ultimately achieving the final form and texture and peristalsis needed for expulsion from the body. And I won't talk through all of these points but I think they're all self explanatory of what
happens as my client from a few years ago put it, "in the poop percolator." This is what's happening in terms of forming a stool or not and eventually expelling it as a waste product from the body via the rectum. And ultimately motility, the notion of movement, peristalsis and motility in the body is about striking the optimal balance between maximizing absorption, because obviously we want the chyme, the slurry that is our being digested food, to remain in our GI tract long enough to allow optimal absorption of nutrients, vitamins, minerals, phytonutrients, but also water, but at the same time, keeping that motility optimal so that toxic exposure, especially in the colon is minimized. And either extreme can lead to a problem. We know that hypermotility, which can result in diarrhea for example, or very loose stools, can easily end up causing nutrient deficiency because we don’t have enough time to absorb nutrition. It can also lead to dehydration. But at the same time, chronic constipation can easily contribute to true disease in the colon itself, and as I said earlier, be a reflection of disease elsewhere in the body.

So let's go down to brass tacks here, right? So what is controlling motility and bowel movement? So I want to encourage everyone to jump onto the questions tab and let's participate. We like doing this in our courses, especially if you’re multitasking. This is a good excuse to put aside a competing interest and come click on the questions app and just type in for me what controls motility. When we boil it down, what is ultimately most in control of motility and bowel movement? What do you see in your practice? What did you learn in your medical training or healthcare training? What did you learn? What's most important? That's okay, don't question yourself, right? This is an educational environment. You are perfectly free to be right, wrong. Tell me what you got. Show me what you think. Awesome, great. Thank you so much for participating. Many of you are talking about hydration, the importance of water, such a critical fundamental. Many of you are mentioning fiber. Many of you are mentioning stress, bacterial balance, insufficient digestive secretions, such as insufficient stomach acid, hypochlorhydria or insufficient bile. The status of the microbiome, bacterial balance, yes, serotonin synthesis, absolutely. High stress, thank you, migrating motor complex, fantastic. The natural cleansing ways. The MMC, the migrating motor complex creates the natural cleansing ways that are important for keeping microbial balance and for sweeping microbial debris down closer to the rectum for elimination. We know that things such as grazing as a way of eating, sort of munching all the time, can highly impair migrating motor complex ways and contribute directly to the development of SIBO by the way. That's a key pearl for you. Here we go, now we're getting to some more scientifically intense upstream ideas. Yes, hypothyroidism, exactly. Dysfunction in the autonomic nervous system, yes, exactly, fabulous. So just sharing some of the things that you are all offering here. You're not able to see all of the things that everyone is offering. I appreciate everyone participating. These are all very valid. One thing that I don't see mentioned is behavior, right? This can be the type of thing that's learned as a child, withholding the stool. I have joked with so many men about, I only have constipation when I can't go to the bathroom in my own bathroom. Some of us learn we're fearful of stools because they've been painful in the past. Some of us are embarrassed about the notion of bowel movements, about the aroma coming from them. Withholding is a very real concept that's not just present in children. Electrolytes, potassium, magnesium, calcium, I mentioned before these are hugely critical. Too much calcium, not enough magnesium. Not enough potassium, especially for people who aren't consuming sufficient plant foods, especially vegetables and fruits. Magnesium is powerful in driving motility because magnesium is a master electrolyte that allows more potassium to get into the cell and have cellular effect and promote optimal muscle contraction and relaxation. Excess calcium overpowers the effects of magnesium and can lead to dysmotility. Hydration and fiber, absolutely important. I do think often they're overemphasized and certainly you may find that if you're working with someone who has other upstream root causes, such as hypothyroidism or insufficient serotonin and you just keep giving them more fiber, they're going to feel worse because basically the microbes are going to end up over feasting on too much starch and fiber fodder and creating a lot of gas and distention. So the whole standby of I'll just give more fiber, eventually enough fiber will create bowel movements. That is not true. Or eventually enough magnesium will create bowel movements. That's not true. In fact if
dysmotility is caused by something like hypothyroidism or say a medication like an opiate, giving more and more magnesium will eventually just cause someone to have a lot of cramping, but they're not going to be experiencing a bowel movement. So none of these solutions is a cure all, right? There's no substitute for us doing our leg work, doing our homework, figuring out the puzzle piecing, right? This is what we're passionate about here at the School of Applied Functional Medicine, learning how to puzzle piece, learning how to put together all of the different drivers and dynamics and predisposing factors for each unique individual.

So moving beyond some of these things, right, impaired digestive secretions can be a major driver. It's well acknowledged that people who have hypochlorhydria or insufficient stomach acid are more likely to have sluggish motility and suboptimal bowel movement. We know that our low stomach acid is a natural consequence of people who are using drugs that suppress the production of acid in the stomach like proton pump inhibitors. It's also the case of most individuals as they age because of subclinical H. Pylori overgrowth in the stomach, a bacterial overgrowth that suppresses acid production, microbes very good at doing so in order to create a more hospitable environment for itself inside the gastric cavity.

Individuals who have type 2 diabetes are much more likely to have insufficient pancreatic enzyme secretion. That's another pearl for you. If we don't get enough enzymes through the combination of the pancreas and then the brush border in the small intestines, and we have mal-digested food, that's going to be much more likely to contribute to constipation.

So we need stomach acid. We need digestive enzymes. We need bile. We do entire webinars on bile and the importance of bile function and the fact that bile comes from the liver and liver congestion can contribute to sluggish bile flow, toxicity and hypothyroidism because the cholesterol build up can actually gunk up the bile duct and cause imbalanced flow of bile, which can contribute to maldigestion and indeed dysmotility.

So these are also things to consider. Microbial population and their byproduct. We joke all the time when we talk about how disease begins in the gut that basically the hormones and the microbes are in charge folks. We can do what we want to on all other fronts, but hormones and microbes really are in charge in the gut. And the choices that we make that impact their balance or lack thereof are very often the furthest most upstream root causes of all sorts of disease.

But there are a lot of hormones being involved here, right? So certainly gastrointestinal hormones, things like cholecystokinin, and secretin, and motilin. We can struggle with insufficient secretion of these hormones. People who have various types of dysbiosis, microbial imbalances in the gut, things like overgrowth of the classic opportunistic bacteria like Citrobacter and Klebsiella and Enterobacter. These overgrowths that over time if not addressed by the immune system can contribute to the development of chronic autoimmune activation. Now we know that dysbiosis can suppress the optimal release of cholecystokinin in the small intestines, which is what triggers digestive secretions. So again, the microbes are playing a dramatic role here. Metabolic hormones. We like to say at SAFM, sluggish thyroid means sluggish everything. So many of you automatically associate constipation with hypothyroid function. We're going to talk a little bit more about that in just a moment. But every cell in your body, in your mitochondria needs ample levels of T3 thyroid hormone, actually free T3 thyroid hormone and cortisol in order to put gas in the car of every cell in your body. And it's not just constipation but all sorts of other dysmotility. Poor peristalsis, IBS symptoms, gastroparesis, all sorts of things can be as a result of poor cellular metabolism, often secondary to low metabolic hormone function in our cells. What might surprise you is to learn about dysmotility from sex hormones. Your patients and clients who are pregnant struggle with constipation largely because of high levels of progesterone, which is of course protective to the fetus,
but it can cause imbalances. Or your perimenopausal or postmenopausal clients who are using progesterone supplementally to get better hormone balance, that may be serving them, but if it's too much progesterone, that can be a very direct driver of constipation. And again, a great example here of just giving you some additional links here in our oh so short class today. We don't have time to dive into our detailed explanation of all of these, but I do want you to have the references for you to pursue on your own.

The enteric nervous system is where 95 percent of the body's serotonin is produced. It is actually the most important neurotransmitter for motility. Excess production of serotonin in the gut often leads to diarrhea. Insufficient serotonin synthesis often leads to constipation. This is actually the pathway via which SIBO causes constipation or diarrhea is because too much hydrogen production in the intestines promotes lots of serotonin, so can promote diarrhea. And as I already shared, too much methane production in the intestines impairs serotonin synthesis which causes sluggish motility. And so a great example of how our behavior affects the microbes, the microbes affect the hormones and the neurotransmitters, and the neurotransmitters affect our motility. A wonderful example of puzzle piecing.

Another little pearl for you that I think I have in a slide further downstream, you're serving a lot of patients and clients who are using SSRI or SNRI medication, these neurotransmitter reuptake inhibitor drugs. Very well understood that for individuals who actually have low serotonin function, which is incredibly uncommon in the individuals who've been given these drugs, when they truly do have low serotonin function taking an SSRI promotes more serotonin activity and they will experience improvement for example in constipation. But it's also true that the longer that people use these reuptake inhibitor drugs, it ends up depleting the very hormone whose action it's trying to accentuate. And so ongoing use of something like an SSRI can actually create constipation simply due to serotonin depletion in the enteric nervous system. It was a very poorly understood pearl in the conventional medical world in my experience.

And then the autonomic nervous system, right? Again vagal tone. This is hugely important. We need to remember that the autonomic nervous system is by and large in charge of everything that happens in the GI tract from the throat down. The only part of digestion that we affect is the chewing and the swallowing, which is why eating hygiene, like good chewing, relaxed eating environment, all of these things are super important, not only for digestion but for the health of the entire GI tract. If we are living in what we call a sympathetic dominant state, a lot of fight and flight, then it's perfectly normal for there to be dysmotility, not because anything's broken but because the sympathetic nervous system is being activated and that nervous system mode does not favor digestion or motility. It's perfectly normal for one to have maldigestion, malabsorption, and dysmotility when one is in a fight or flight state. But it's also true that things that cause neuropathy, whether it's a medication or something like hyperglycemia, type 2 diabetes that leads to oxidative damage to our nerves, people can have a neuropathy in the GI tract, in the enteric nervous system, which can also lead to all sorts of dysmotility. You want to look for that in your patients and clients who have type 2 diabetes.

So I'm covering a lot of pearls here. But let's talk about what constipation is from our patient and client perspective. Because, this can really flow from being either just annoying or mildly frustrating to actually being life threatening. People can experience all sorts of associated symptoms. As I said before, it's an incredibly common complaint and something that we encourage our students at SAFM to prioritize in terms of a rapid relief focus, not only because it brings excitement, and people start to get wildly satisfied, and they believe in you, and they believe in themselves, and they believe in the journey, and they believe in functional medicine, and they're on fire, and they're probably never more empowered than that first day they finally have a bowel movement. I've gotten the most emails and texts and voicemail messages
from people who are used to only having one painful bowel movement a week to where they're finally having one or two a day. It's amazing. That's really important. But it's also key to clear constipation because an awful lot of what you're going do upstream, you don't want to do until this pathway is open. If someone is constipated we don't want to work overtly on rebalancing gut microbes. We certainly don't want to be killing off anything like a parasite or a SIBA overgrowth or a candida overgrowth because we're just going to end up trapping waste products and sources of inflammation in the GI tract. We don't want to do things like promote more liver detoxification and therefore more conjugation of toxins that are going to flow from the liver via the bile duct into the intestines for excretion and they're not going anywhere, right? We're just increasing the toxic burden in the colon. So we want to open up this pathway, not only for relief to wildly satisfy our clients, but also because we need to address that before we start doing things upstream so that we don't create a dangerous situation. It's also true that constipation and the way people counter constipation can lead to other disease in the body. I'm sure all of us have experienced people who struggle with diverticulosis, which is a creation of pockets in the intestines. By far -- by far the most common cause of diverticulosis is just constipation, where people are overstraining and creating a massive amount of pressure in the colon, which actually creates stress and damage to the tissue and creates some pocketing, kind of like what happens when you over blow up a balloon. And then of course if there is too much of a toxic environment in the colon or a lot of microbial byproducts or an inflammatory diverticulosis can turn into diverticulitis and be the gateway for all sorts of other colon disease. So all of this is to say we want to address constipation. Now I see this argued quite a bit in various conventional circles, but it's super important to ask your patients and clients details about their bowel movements. Don't just ask someone if they're regular, because if they regularly have one bowel movement every four days, that's regular to them. They don't know any different. And most of us beyond the age 5 don't talk about our bowel movements with friends and family. So we don't know if what we're doing is normal or healthy. But this has actually been studied and we really understand that indigenous cultures eating a normal, healthy whole foods type of diet have one to three easily passed stools daily. There's little if any aroma, a medium brown color. They are complete, long log like pieces or maybe just a few pieces. But most importantly, they come out of the body very readily, especially if we are squatting in order to do a bowel movement, which is the position that allows for the easiest movement of stool through the rectum. So constipation can be anything from a true impaction all the way through to just less frequent, hard to pass stools or maybe pellet like rock sized stool pieces, or just incomplete evacuation. There's a huge spectrum of intensity but it does affect the vast majority of individuals in the western world who have GI issues. In my practice, it's actually about 40 percent of my clients. We tend to focus in our practice on gastrointestinal issues. But even a conservative estimate is 15 percent of the population. So I'm going to give you the list right now. I encourage you, when you get the slide deck to print this out and have it handy so that when someone presents with constipation, you can run through this list, because in my experience, these are the most common root causes of constipation. Now there can be a lot of other contributing factors. But these are the things that are causing constipation. Could it be insufficient magnesium? Sure. Could it be insufficient water or fiber? Sure. But those are two of these 15 dynamics. And so I want to encourage you to really use a rich complexity of functional medicine science to be thorough. And we teach in depth about all of these dynamics in our various clinical courses here at SAFM. Today, I obviously don't have the space or the time to go through a detailed explanation of all of these. If you want to learn more about it, I invite you to become a student with us and to really do a deep dive into what most interests you. But at a minimum I want you to have immediate value that you can use in your practice.

So we talked about insufficient magnesium. I want to talk about some of these other pearls here. Excess vitamin D intake. So vitamin D is a very hot topic. A lot of people are supplementing with vitamin D. A lot of people are supplementing with massive doses of vitamin D. But when you combine someone having
subclinical magnesium deficiency with high doses of vitamin D, what you're going to get is constipation. You're going to get symptoms of magnesium deficiency, because the body has to use magnesium to convert vitamin D into its final form that the body is actually taken up into vitamin D receptors. This is the case of vitamin D whether it's actually made in the body via sunlight or whether it's taken in exogenously from supplement form. So if someone already has barely sufficient magnesium levels, and they start taking a high dose of vitamin D, and they suddenly start having symptoms associated with the vitamin D, if you will look carefully, those will almost always be associated with either the hormonal effects of vitamin D such as too much vitamin D can promote hot flashes in late perimenopausal or menopausal women, or associated with symptoms of low magnesium. So very important to consider magnesium needs first before adding a vitamin D supplement, especially if it's going to be a significant dose like 2000 IU’s or more. Certainly I don't generally see any issue when someone’s taking a multivitamin that may have 2 or 3 or 400 IU's of vitamin D3, but when we get up into the 1000s of IU's it doesn't have to be a 50,000 or a 10,000 IU dose to be a problem. Plenty of people out there start taking 2000 IU's of vitamin D3 and within a few days start to experience notable symptoms which are likely associated with insufficient magnesium.

We already talked about excessive calcium intake. I talked about autonomic neuropathy, right, associated with insulin resistance and hyperglycemia. Individuals who have evidence of peripheral neuropathy, which is a very common side effect of type 2 diabetes, because again of oxidative damage to our nerves because of the high sugar content in the blood. That is the pathway by the way, via which type 2 diabetes wreaks most of its havoc, whether it's on our kidneys or our eyes or our nerves or the lining of our arteries, is via oxidative damage. And the nervous system is vulnerable to that. And so if you have type 2 diabetes patients who struggle with other types of peripheral neuropathy like numbness or tingling, think about the possibility of autonomic neuropathy as well. An important pearl is that the most commonly prescribed medication these days for type 2 diabetes in its moderate stages is Metformin. And Metformin is a great drug in terms of actually improving insulin sensitivity, however, Metformin has a well known risk of depleting vitamin B12, and low vitamin B12 is also a common cause of neuropathy. So there can be an unfortunate catch 22 there, so you want to think about that in your type 2 diabetic patients and clients.

Hypothyroid state. We do an entire deep dive clinical course on thyroid and adrenal function, and we could talk about this all day. But basically individuals can have a perfectly optimal TSH and they can even have a perfectly optimal T4 or free T4, but when we actually start looking at T3 and low T3, we find that individuals have poor conversion of T4 to T3 thyroid hormone, which is not done to any significant degree in the thyroid gland. It's actually done in the liver and to a lesser degree in the kidneys and other tissue. But this poor conversion is at the root of an awful lot of people who have obvious signs of hypothyroidism who are being told they're fine based on an insufficient lab assessment. An awful lot of people out there still...a lot of very well educated, well intended medical practitioners are still using TSH as an accurate monitor of thyroid function, and of course it is not the case.

Adrenal dysfunction, we know that high levels of cortisol can promote a conversion of T4 thyroid hormone into something called reverse T3, which is an inactive downstream metabolite that fills receptors and keeps T3 from being taken up by receptors. And of course it's also preventing the T4 to T3 conversion. But it's also true that sustained stress, what a lot of people like to call adrenal fatigue, which is more accurately entitled dysfunction of the whole HPATG axis can lead to low cortisol as the body moves into a self preservation mode and drops cortisol down so that we stop suffering from the ill effects of high cortisol. We need enough cortisol to actually allow the uptake of thyroid hormone into the cells. So either a high cortisol or a low cortisol state can drive a hypothyroid function and contribute to constipation.

We talked about serotonin already. I talked about the SIBO dynamic. I want to mention dysbiosis. Simply having an imbalance in endemic microbes can be a problem. As we age, constipation becomes much more
common, especially because the elderly are much more likely to have low counts specifically of beneficial bacteria strain called bifidobacteria. And so probiotics that are high in bifidobacteria or even solely bifidobacteria can be a great probiotic solution for constipation, especially if the constipation is on the heels of having used an antibiotic.

Now here’s a fabulous pearl for you. It is well acknowledged that food sensitivities can lead to constipation, especially dairy. Please write this down. This is such a simple solution. But I find a lot of practitioners are caught up in the distinction between lactose intolerance, which is not a food sensitivity, it's a digestive deficiency where a person's brush border is not producing lactose, so it can't break down lactase, the sugar in milk, and it actually promotes diarrhea. This is a genetic, inherited trait. It is incredibly common. Entire cultures of people are lactose intolerant. An awful lot of nations don't consume dairy products in their entire lives, and they still have strong bones and they're in Olympic competitions. Dairy is not a necessary food. Some people may thrive on it, but many people do not. But on the other side from lactose intolerance is dairy protein sensitivity, where the immune system usually by a IgG or to a lesser degree IgA activation with a delayed hypersensitivity reaction is having an inflammatory response to the proteins in dairy, most often to casein, but it can also be whey. And this can promote constipation. And so I definitely want you to be aware of this.

I've already mentioned sympathetic dominance. I've mentioned progesterone, and we've talked about some of the dietary fundamentals. I also want you to be aware of medications and I want to give you some specific examples for that. This is a list of sort of distinct prioritized root causes, but I also wanted to organize it a little bit differently and give you a little bit more detail. I won't step through all of this. But in terms of talking about what's actually happening to the stool or the colon itself, these are some of the drivers. And so many of us associate constipation specifically with, for example, opiate medications, opiate pain killers, or things that impair acetylcholine action, for example. These are well understood to promote constipation and very often laxatives are prescribed right alongside them in order to try and minimize those effects. On the other side of the coin, you want to think about things that might be impairing serotonin, things that might be blocking magnesium action or contributing to electrolyte loss in the body, like diuretics, or things that might be impairing stomach acid synthesis, like proton pump inhibitors or other acid suppressing drugs. These are things to think about in terms of contributing to constipation. It's not just about things that directly impair motility. So again, just another resource for you to understand some of the devil in the details. Excess progesterone promotes constipation because progesterone literally acts as a muscle relaxant. It's part of why progesterone helps people to sleep. So if you don't have good peristalsis tone in the GI tract, it can contribute to dysmotility.

So let's talk a little bit about some of these other dynamics, and these are just some additional pearls for you. So thyroid symptoms of extremes. These are the kinds of things you can be looking at in terms of puzzle piecing. These are the types of puzzle piecing lists that we put in all of our deep dive clinical courses. You can start to understand where a collection, not individual symptoms, but all the puzzle pieces put together can start to point to what might be at play in a given individual. And certainly, various types of dysmotility including constipation should really make you think about the possibility of hypothyroid function. Again, even if their TSH looks perfect, even if their free T4 looks perfect, we need to do a deeper dive. We need to be looking at free T3. We need to be looking at reverse T3. We need to be looking at cortisol for example. Yes, we've looked at free T3 versus total T3 because sex hormones like estrogen play a big role in our levels of thyroid hormone binding globulin, and people who have high estrogen or actually in estrogen dominant state can end up with too much bound thyroid hormone. And so we definitely want to check free levels. Keep the questions coming by the way. That's great for clarification. So again, we don't really have the space to talk about it in depth, but just to give you, this is just a sample slide from the thyroid class, just to show you some of what we teach in terms of the flow of what's happening in the
body and the fact that the brain is really the root of the stimulus. It's telling the thyroid gland to make thyroid hormone, but the thyroid gland itself makes hardly any T3. It's making T4, which is largely inactive thyroid hormone, and it's really about the help that the liver and the kidneys and the support of cortisol and good nervous system balance that's helping to actually create good levels of active T3 that can actually get into the cell and allow us to have cellular effect. We actually well know that the brain from a feedback system is satisfied for thyroid hormone on a cellular level sooner than other body parts like the liver, and this is why even though a person might have optimal TSH has an indication that the brain is satisfied with the level of thyroid hormone. TSH can be optimal but other downstream tissue such as the liver can still be struggling with a hypothyroid state. And this is the reason why over reliance on TSH as a marker is I think misinformed.

On the same level, we've got typical symptoms of extremes with regards to cortisol levels. We've got a hyperstimulated versus an under stimulated stress axle. Contrary to popular belief, we don't go from the left to the right because the adrenal gland gets broken. We do that because the brain eventually decides that an elevated stress state is becoming damaging to the body, and it might shift the whole HPATG hormone axis from a hyperstimulated state to a hypo-stimulated state in the spirit of preservation. This is a self preserving action, triggered by the brain. And so again, you can start to see, and I don't have time to really go through all of this, but I think you will find it very interesting to think about the profiles of these patients, individuals who may struggle with sympathetic dominance. And what this means in terms of symptoms and hormone balance and electrolyte balance versus those who are understimulated. When you do a good comprehensive hormone assessment like the DUTCH urinary panel, which we like to use, I highly recommend, and we teach about that here at SAFM, you can see what people's diurnal curve of free cortisol looks like and the difference between the levels of free cortisol versus the aggregate levels of cortisol synthesis, allows you to really find the devil in the details so that you’re not guessing. Hormones are an arena where we often say at SAFM, "Tests don't guess," because an awful lot of hormone imbalances look alike and of course we could end up recommending totally counterproductive remedies if we don't actually know what's at play.

I wanted to give you just a couple of slides on small intestinal bacterial overgrowth, again just a couple of sample slides from our deep dive clinical course called Disease Begins in the Gut 101, where we talk about small intestinal bacterial overgrowth, what it is, what it isn't. Again, this is not a pathogenic bacterial issue. This is not a matter of the immune system being asleep at the wheel and allowing pathogens or allowing an opportunistic bacteria to overgrow generally. This is a matter of poor motility and poor peristalsis and migrating motor complex such that good endemic bacteria are allowed to migrate back up through the ileocecal valve that separates the colon from the small intestines and feast on our food fodder. This is an example of a fabulous study that I think does an excellent job of explaining, and this is a great diagram by the way for your patients and clients who have SIBO to actually show them what's going on and why with SIBO we end up with in the small intestines -- microbes at a much, much higher population concentration than we should, and all of the classic IBS symptoms of distention and gas and excessive flatulence and cramping and diarrhea or constipation are just sort of normal downstream symptoms of too much microbial metabolism. Our body's struggling with overflow, overload of gas byproducts from those microbes. I think SIBO is really going to be sort of the hot topic in the functional medicine world for another five years or so. For a long time it was candida, then it was leaky gut, and now it's SIBO. We have to be careful as practitioners not to get too much on the bandwagon and start to see everyone is having SIBO or everyone is having mercury toxicity or everyone is having candida. We end up focusing too much on a single tree and missing the forest very often that way. And so a huge skill as a practitioner is being able to keep beginner’s eye. We like practicing that at SAFM with lots of case study review.
Okay, so that's a bit of an overview. I want to start talking about some things that are going to help. This is going to be a rapid review here. I've given you a lot of details so that you can reference it later on, but obviously for the root causes that I've talked about so far, you've got to dig into the root causes of those and many of you already have education and you know how to do that. And that's great. If you don't, I'd be delighted to have you be a student with us and actually learn how to address hypothyroid function or learn how to address insufficient serotonin synthesis at its root. But in the spirit of helping people to get rapid relief and addressing the lifestyle dynamics at play, we still need a good healthy toolbox of remedies.

So the conventional medical world uses a lot of drugs largely. These are things that largely soften hard stools or promote motility by forcing more water into the colon or forcing hypercontraction of the muscles in the intestines in order to artificially stimulate peristalsis. So these may be absolutely necessary in acute situations where someone is impacted, but there are downsides to all of these drugs and they are not intended to be long term resolution. As I said earlier, I'm actually a chemist by background. I'm a big believer in better living through chemistry. I'm not against medication. Medications are a lifesaving blessing. I just believe that they are overused, they are overprescribed they're too often regarded as first line treatment rather than emergency triage or last resorts in order to create more stability so that a person can work on their lifestyle, or can get enough stability to work on their lifestyle or to create enough stability biochemically in the body so that you have time to work on the root causes. There are a lot of conventional solutions that are even better intended, trying to get more fiber in the system, and like I said, in my own practice I've served a lot of people who showed up to me with worse issues in the GI tract because a well intended but misinformed practitioner just kept recommending more and more and more fiber. But I also want you to be aware of the fact that an awful lot of fiber out there is bringing in a lot of crap with it. A lot of potentially inflammatory additives, potential food sensitivities, artificial sweeteners, artificial colors, artificial sweeteners, artificial preservatives, artificial colors, flavors. Obviously, not necessary. It is not necessary for our fiber supplement to taste like orange and be orange in color and have the consistency of milk. We just don't need these things. Very critical that you educate people about labels and what they're actually taking in, and this can be a powerful pathway for getting someone to consider alternatives when they feel really attached to their constipation remedy, because they feel vulnerable without it.

So what does work? Well in terms of one time triage things where we really just want to get down to it, there's a lot of myths out there that dried fruit improves motility. I will tell you that's not true. For a lot of people, any kind of dried fruit may actually make it worse. Prunes specifically work not because they are high in fiber. Prunes work because they are high in sugar alcohol, which are of course contraindicated for people with SIBO. But for others with constipation, a few prunes can be effective. Xylitol is also a sugar alcohol. It also tastes quite sweet on its own, and you can buy mints or chewing gum that has Xylitol in them. Chewing gum actually I recommend for constipation because the act of chewing actually stimulates motility. That can be used for more mild cases. Olive oil promotes peristalsis. In particular, it promotes contraction and emptying of the gallbladder, which also stimulates motility downstream. That's because of the polyphenol content in olive oil. It is not because it is a high fat food. Olive oil is loaded with polyphenol. That's actually how coffee stimulates motility. It's because of the polyphenol content. The caffeine also contributes to that, but not as much as the polyphenol. And then of course, there are all sorts of herbal formulas that include stimulatory herbs, things that you're likely familiar with such as senna or kaybaloo? [inaudible 01:15:51]. There are teas like Smooth Move that people may feel dependent upon. Again, these can be important triage or short term remedies, but I do not recommend dependency on them, because it is not addressing a root cause. People do not have a dietary deficiency of senna or xylitol. That is not a root cause resolution. The science of functional medicine would certainly allow for the importance of triage, but our work has only begun when we've done triage. The opportunity is to allow the rapid relief, to begin the journey of root cause resolution.
And then stress. Let's talk about stress relief. This is huge. This seems like such a natural obvious thing, but guaranteed most of your patients and clients are not expecting that their stress level is contributing to constipation. And again, not because anything's broken, but because it is normal for the sympathetic nervous system to promote gland release secretions and organ function and nervous system action in some areas of the body and not in others. This is because if you have to fight for your life, if you're fighting and flighting, the body is not interested in digestion or sex or fertility or any of these other things that people expect to have when they're living a very stressful life. The body is fully capable of going into fight or flight mode and saving itself. But that's intended to be the less common nervous system state. And so educating people about this, using diagrams such as this to educate people about hopefully making the choice to stop joking about their stress and actually doing something about it. Because I'm amazed at how often this and the downstream effects on motility and digestive secretions and thyroid function and cortisol levels have a huge impact on many, many functions in the body including motility.

So just a few more notes on that as well as the concept of eating hygiene. We talk a lot about this at SAFM, the nitty gritty detail about the fact that chewing and the relaxive-ness of the body are the only two things that a person controls. Those are the only parts of voluntary actions in the whole digestive process. And so a number of pearls here to help educate your patients and clients.

Now, let's talk about magnesium. Again, many of the people you're serving have insufficient levels of magnesium and a surprising percentage of them actually are truly deficient. We want to keep in mind that serum levels of a mineral or a vitamin for that matter are not necessarily representative of what's actually in the cell. Getting nutrients, nutrition in the body is not just eating, it's not just digesting, it's not just absorbing. It's about getting it into the cell where it can do work. And so I highly recommend checking magnesium with red blood cell, RBC magnesium level, not serum level. But these are some pearls. Magnesium can be customized for what people need. The form of magnesium I most often recommend for people who struggle with constipation is citrate. Second to that would be oxide. Both very stimulatory specifically to the bowels. If a person has other symptoms of magnesium deficiency like muscle cramping and hypertension, but they have perfect bowel movements, you don't want to use those, because you'll probably mess up those perfect stools. We might use another form of magnesium. There are other posts about that on our SAFM website in the clinical tips public area. If a person takes magnesium citrate and it causes GI issues, which yes it can, certainly people can be sensitive to the citrate, then you might try other forms like magnesium oxide. If you find the GI tract is just too sensitive overall, consider magnesium sulfate. Sometimes a soak in Epsom salts can actually be sufficient. But people have widely varying needs for dosing. And so you have to really play around with this. So oxide forms can be helpful specifically for constipation. Oxide is not as well absorbed into the systemic body. But if you're primarily wanting to have an effect in the GI tract, you don't care. You can also buy combination forms of magnesium, like trimag or trimagnesium, which will have a little citrate a little oxide and maybe like a little glycinate or a little malate to do a better job of supporting systemic needs. So we have to consider the source. We have to consider what we're trying to address. My number one recommendation would be magnesium citrate, but not everybody can tolerate that.

In terms of fiber, it's important to understand what kind of fiber you need. We have soluble fiber and insoluble fiber. Soluble fiber absorbs water and can bulk up a stool and make a stool soft so that it's easier to pass. Insoluble fiber helps to move the stool along. So depending on whether a person has constipation that looks more like incomplete, kind of watery bowel movements or whether someone's literally just not passing a stool, you're going to want to use the type of fiber that will actually help the most. A pearl for you is that psyllium husk can be a great remedy. Psyllium husk has a little bit of both kinds of fiber, but they're a good source in particular of soluble fiber. But too much, too fast can really create a lot of IBS.
And psyllium husks are definitely contraindicated for those individuals who are already struggling with IBS type symptoms because it will probably make it worse especially those with cramping and abdominal distention.

Water. A lot of you really hit the nail on the head when I quizzed you earlier and you talked about hydration. You have a lot of people in your practice who are struggling with subclinical dehydration. I think this is self explanatory, so I’m not going to talk a lot about it, but this is a big issue. And unfortunately it’s a big myth in that the optimal level of water is eight glasses. That is widely talked about but there is no science behind that. Someone just made it up and it sounded good. But people who eat a lot of broccoli and vegetables may not need that much water. People who eat a lot of processed food or a lot of diuretic foods like black tea and coffee, especially if its intermittent, it's the irregular intake of those drinks that can particularly be an issue. Alcohol is always a diuretic. So these are things you want to think about that might be contributing, and certainly the number one place I would start.

We could talk all day about the microbes. We do entire webinars on microbial balance. Some of you are very well familiar of the variety of different microbes in our body and what they need in order to thrive. In fact, one of the primary ways in which fiber helps and prebiotics -- fermentable fiber and complex starches helps with motility is because it's food fodder for our microbial friends, which allows them to flourish and they contribute to motility. But we have normally the greatest concentration of microbes actually in our colon. Again, we talked about SIBO being a situation in which too many of those are able to migrate up through the ileocecal valve. But individuals who take a lot of medications, individuals who don't eat organic food, who consume chlorinated tap water, who consume a lot of sucralose as and artificial sweetener, who are regularly getting antibiotics, they're going to struggle with having optimal, even just populations of endemic microbes, in particular, in the colon. And this all by itself can contribute to dysmotility. We can go a long way just towards educating people about the benefit of antibiotics or really saving them for life threatening concerns. To give you some pearls here on probiotics, as I mentioned earlier in particular probiotics that have higher levels of bifido factor... I apologize, this is actually an old picture. This is called Ultimate Flora Senior Formula. Now it's called Ultimate Flora Adult 50+. I guess they figure that's a less offensive name. But this probiotic by Renew Life is a great example of a full spectrum probiotic but one that just has more bifido factor species in it. But probiotics again for individuals who don't have overt SIBO already can definitely be of benefit.

Eating hygiene. I'll give you some pearls on eating hygiene. Hugely important for people to prioritize this in order to engage the parasympathetic nervous system to optimize digestion, optimize absorption, and optimize motility. Many of you have heard me say in other public webinars before that if we were to just teach the importance of eating hygiene and stress relief all by itself, we could revolutionize health. Grazing, this again we talk about quite a bit in our Disease Begins in the Gut course. Actually we talk about it quite a bit surprisingly in our fibromyalgia course, because individuals with chronic fatigue syndrome and fibromyalgia are much more likely to struggle with gut dysfunction, especially with SIBO. And grazing, a lot of people think that that's an optimal way to eat. And so for people who feel healthy and it feels great in their gut, that's awesome. But for a person who has SIBO or a person who has GI dysfunction or dysmotility, really giving the migrating motor complex a chance to work in between meals is critical. And while we are digesting food, MMC does not work. The body does not digest and cleanse at the same time. It's going to do one or the other. So again, a lot of pearls that I want you to come back and take a look at here in follow up when we hand over the slides. And again, I'm trying to give you some good astute understanding of some of the functional medicine science that we talked about earlier, but also giving you some good solid pearls on what to do to help in terms of rapid relief. If you were going to lubricate something like your plumbing in your home, you actually wouldn't use water. Water's only of value because it helps to bulk up the stool because of soluble fiber. What will lubricate the stool is fat. And so
your patients and clients who are still afraid of fat, as old school as that sounds, as 1990s as that sounds, there's still an awful lot of people who are afraid of fat and not just people who have had their gallbladders remove or who are discovering that maybe they don't well digest fat and they're waiting for you to help them figure out that -- that's because they have suboptimal bile function. But there are essential fats that we do have to get from our body, excuse me, from our diet. We can't make them in our body. But whether people choose to eat a mild amount of fat or copious amounts of fat, it's very important for lubricating a stool.

There's a question here about how it affects motility. It depends on what type of microbial overgrowth is happening. As I said before, the ____ are feeding the microbes in the small intestine, their feasting, and it has to do with whether those microbes are producing primarily hydrogen or hydrogen sulfide or whether those microbes are producing methane. It's not about the food in that case, it's about what kind of microbes we're fueling.

And then I really want to just, in closing here, want to emphasize foods insensitivities. We teach an entire course on allergies and asthma and talk about food allergies and food sensitivities. This is an area of massive confusion. But the pearl I want you to walk away from here is that delayed hypersensitivity reactions stimulated by IgG antibodies are very real. There's a lot of poo pooing about it in the conventional medical media, and it is true that a person can develop high levels of IgG antibodies for other reasons like for example in response to desensitization therapy for true allergy and a person has high IgE antibodies to a substance. One of the things that we know that the immune system will do is start to produce high levels of IgG as a way of developing tolerance via that desensitization therapy to try and counter the allergy. But aside from that, certainly a person can have high levels of IgG just because of extremely high consumption of a food. But when there is a triggering of complement and in tandem with a secretion of IgG antibodies, that's inflammation that can be delayed as much as 48 hours or even longer after the food has been taken in. So people very often don't know what their sensitive to. Dairy and gluten sensitivity is extremely common. I think that's because low grade enhanced intestinal permeability is very common. Most of us have trashed our brush border courtesy of pesticides and artificial sweeteners and medications and over the counter painkillers. And so the enzymes that would help us to even partially digest gluten and dairy are in that brush border. And when we damaged our brush border, we really don't digest those foods well. And the combination of a damaged brush border plus intestinal permeability means that the immune system gets too much exposure to these mal digested foods, it flags them as a foreign invader, as potentially threatening, and then a person has a food sensitivity. Really important to understand this and not just in the spirit of constipation, but in the sense of all sorts of other dynamics, anything from anger management issues to attention deficit, to arthritis, to liver issues.

Alright. Wow, I know this has been a real serious deep dive, an aggressive one. I have worked really quickly. I was planning about an hour and twenty minutes. I've gone a little bit over that. But I really wanted to just give you this overview. Again, I appreciate that some of you are already very accomplished and astute practitioners. You're already well familiar with a lot of the functional medicine dynamics that I talked about today. And I really hope that you just picked up some pearls, a few of the handouts that I emphasized that you can make from individual pages in here. I hope you run with those ideas and that they help you starting tomorrow with serving your patients and clients more effectively. Others of you who are already students at SAFM, this may help you to make a particular deep dive clinical course choice, especially for our next semester coming up in September. For those of you who are new to us, if you're not familiar with a lot of the functional medicine dynamics, the science of functional medicine that I mentioned earlier, whether you're a physician or a health coach or a dietician or a nurse practitioner, it would be my deep pleasure to welcome you as a student do engage in a slower progressive way to really doing a deep dive into the science of the concepts that I just got to introduce today.
So I'll close with just a return here to the complete list. For those of you joining us live here, you will be getting information about accessing the archives. You will be able to see a streaming video. There'll be a downloadable audio only style that you can put on a device of your choice, and you'll also be able to access a PDF file of the slide deck. We really like to give our students a rich variety of tools. There will also, in about four days, be a transcript of this webinar as well. We like giving a rich variety of teaching tools to our students, because we all have different learning styles. Not trying to force you to learn a certain way. We want to give you a diversity of tools so that you can choose the way that works best for you. So I want to thank all of you so much for joining us today, and I hope that what I presented today really serves you and serves your patients and clients right away.