



SURPRISE! IT'S A **PARASITE!**

How To Test & Treat Parasites for Better Health

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Bestselling author of Healing SIBO

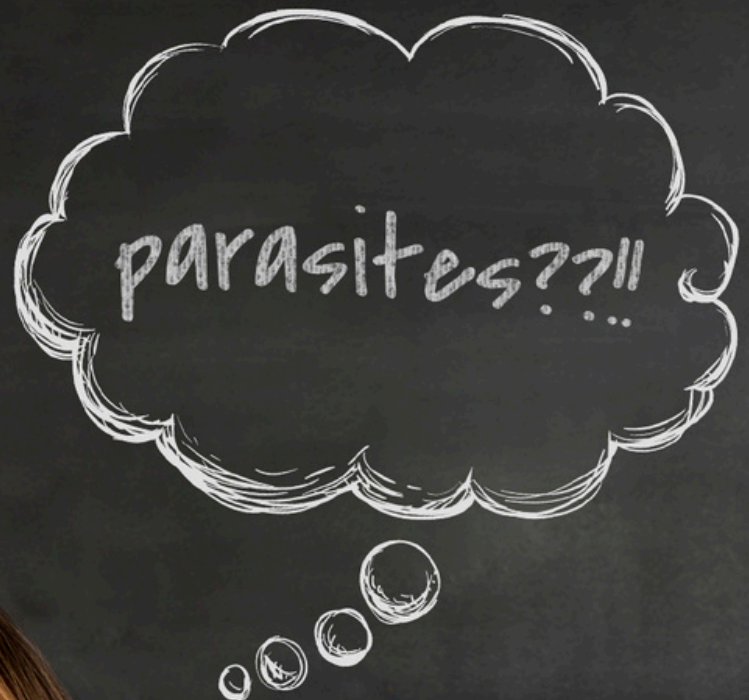


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Parasites:


A Modern Epidemic

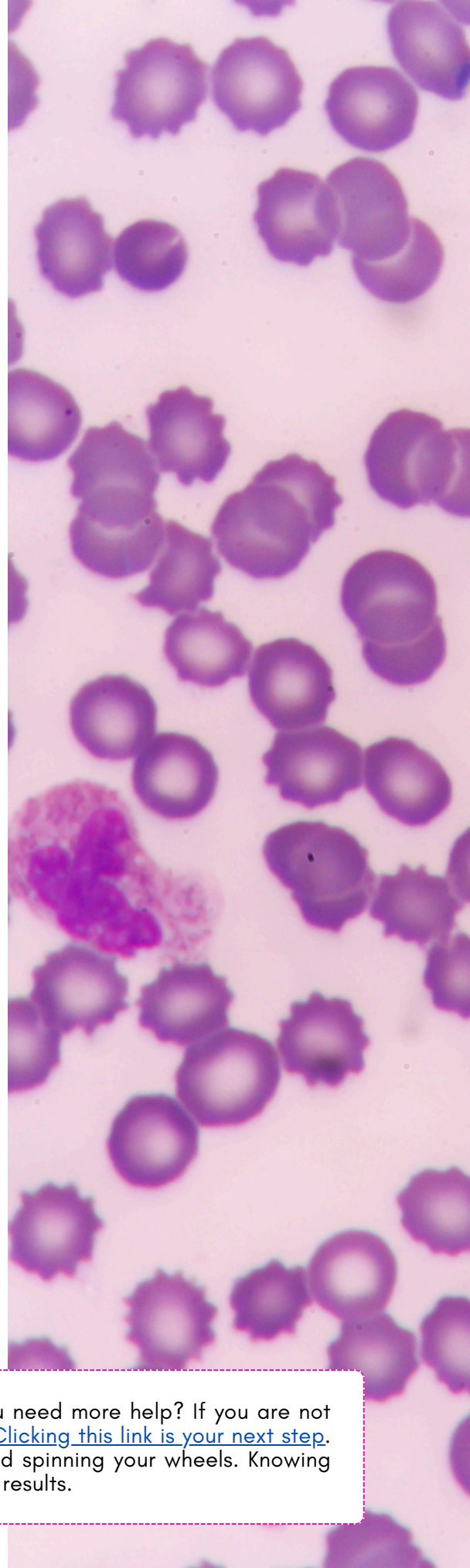
“If you have a pulse, you have parasites!” This tongue-in-cheek saying by my colleague Dr. Todd Watts, affectionately known as “The Parasite Guy,” is a clear indication that parasites are not just something that happens to people in documentaries like *Monsters Inside Me*. They’re all around (and in!) us.

YIKES

Parasites are organisms that live off of other organisms called hosts. They can be found in all types of environments, and they can affect both plants and animals. Some parasites are harmless, while others can cause serious diseases.

Different parasites can affect different parts of the human body and cause a variety of confusing, systemic symptoms that can be hard to differentiate from other root causes.

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While many think parasites are something you only have to worry about in third-world countries, that's simply not true. Some parasites can be transmitted through contaminated food or water, while others can be transmitted through contact with an infected animal. You can get parasites from walking through the soil in your bare feet, swimming in an infested lake or river, touching money, or eating at the salad bar. Parasites can also be transmitted from person to person through sexual contact (more on that later). The truth is, our food is coming from all over the world, being touched and prepared by strangers – the cleanliness of their hands unknown. And our total toxic burden is higher than ever, meaning for many of us, our immune systems can't keep up.

There are two different camps when it comes to parasites. Some believe that there are inherently commensal and non-commensal bugs. **Commensal bugs** provide the host with nutrients. "They metabolize indigestible compounds, defend against colonization of opportunistic pathogens and contribute to the development of the intestinal architecture as well as stimulation of the immune system among others."¹ In short, commensal bugs don't harm the host.

A **non-commensal bug** is the opposite. They feed off the host, take its resources, and typically have a "parasitic" relationship... literally!

So some bugs are *always* either good or bad, no matter their quantities or ratios in the body. Others believe that the microbiome is

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¹ <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/commensal>

what's important and that anything can become pathogenic when the balance of the microbiome is thrown off.

It's no surprise that there are always two different ways to treat parasites: "kill, kill, kill" mentality to eradicate the non-commensal bugs, or a gentler approach to adjust the body's microbiome. This is why finding a parasite protocol can be difficult, because there are many that range from gently supporting the body's detoxification pathways to heavy pharmaceuticals.

There are three main types of parasites that can affect humans: protozoa, helminths, and ectoparasites.

1


Protozoa

Protozoa are single-celled parasites that can cause diseases such as malaria and amoebiasis. An example of protozoa is the Plasmodium falciparum, which is a type of parasite that causes malaria.

2

Helminths

Helminths are parasitic worms that can cause diseases such as ascariasis and trichinosis. Helminths are divided into three main groups: cestodes, nematodes, and trematodes.

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- 🔍 **Cestodes** are parasites that live in the intestines of their host. They can cause diseases such as tapeworm infection.
- 🔍 **Nematodes** are parasites that can live in different parts of the body, including the intestines, lungs, and muscles. They can cause diseases such as ascariasis (from roundworms) and trichinosis (a foodborne illness caused by a microscopic parasite).
- 🔍 **Trematodes** are parasites that live in the blood of their host. They can cause diseases such as schistosomiasis (caused by blood flukes).


3

Ectoparasites

Ectoparasites are parasites that live on the surface of their host. They can be found in all types of environments, and they can affect both plants and animals. Some ectoparasites are harmless, while others can cause serious diseases.

There are two main types of ectoparasites: **arthropods** and **mollusks**.

- 🔍 **Arthropods** are parasites that can cause diseases such as Lyme disease and scabies (note: other insects can also cause Lyme disease, like mosquitoes). Arthropods are divided into four main groups: insects, spiders, ticks, and mites.

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Mollusks are parasites (not to be confused with seafood) that can cause diseases such as schistosomiasis. Mollusks are divided into two main groups: flatworms and roundworms. Flatworms are parasites that live in the intestines of their host. Roundworms are parasites that live in the lungs of their host.

Treatment for parasites depends on the type of parasite and the severity of the infection. Some parasites can be treated with medication, while others may require surgical intervention (like parasitic infections in the liver or lungs, for example). In some cases, parasites can go away on their own. Prevention is the best way to avoid getting parasites. Be sure to wash your hands often, avoid contact with contaminated food or water, and make sure to focus on creating a foundationally-strong microbiome to support overall immune health. It's vital to have an inner gut flora that is inhospitable to the overgrowth of bacteria, pathogens, and parasites.



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Diagnosing Gut Conditions: Is it **Bacteria** or **Parasites**?

Differential Diagnosis

A differential diagnosis is a list of different root causes or diseases that could be causing your symptoms.

Because symptoms of parasites and SIBO/IMO are so similar, a differential diagnoses exploration can be helpful any time you have gut-related symptoms. It can help you rule out other potential causes. This is especially important if: You've already been treated for SIBO/IMO, but didn't get better; you think you might have it, but testing was negative; your symptoms go away, but come back after treatment, or you have confusing gut symptoms and you're not sure the exact root cause.

Differential diagnosis is also important to consider before starting any kind of treatment. If you jump into treating without first exploring the other potential causes of your symptoms, you might end up wasting a lot of time, money, and effort on something that won't help. This is not only time-consuming but emotionally very draining to anyone who has been brave enough to take on this quest for health. I applaud you! Go you!


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The best way to rule out other potential causes of your symptoms is to work with a healthcare practitioner who is experienced in diagnosing and treating SIBO/IMO and ideally parasites too. (Just in case you have them and hey are messing with your gut.) They will likely ask you about your symptoms and medical history, do a physical exam, and order appropriate testing. (For more about testing, refer to the Ultimate Testing Guide (part of this eBook bundle). Once SIBO/IMO has been ruled out or confirmed, they can help you develop a treatment plan that is tailored to your specific needs.

Other potential causes of gut symptoms include food sensitivities or allergies, Celiac disease, inflammatory bowel disease (Crohn's disease or ulcerative colitis), stress, or a nutrient deficiency. One alternative diagnosis to SIBO/IMO can actually be a bacterial infection or parasites. A lot of the symptoms are similar, and sometimes people can have both SIBO/IMO and parasites at the same time.

Again, working with a healthcare practitioner who is experienced in diagnosing and treating gut issues can help you determine the root cause of your symptoms and develop a treatment plan. Not all are skilled in this type of work so please ensure your

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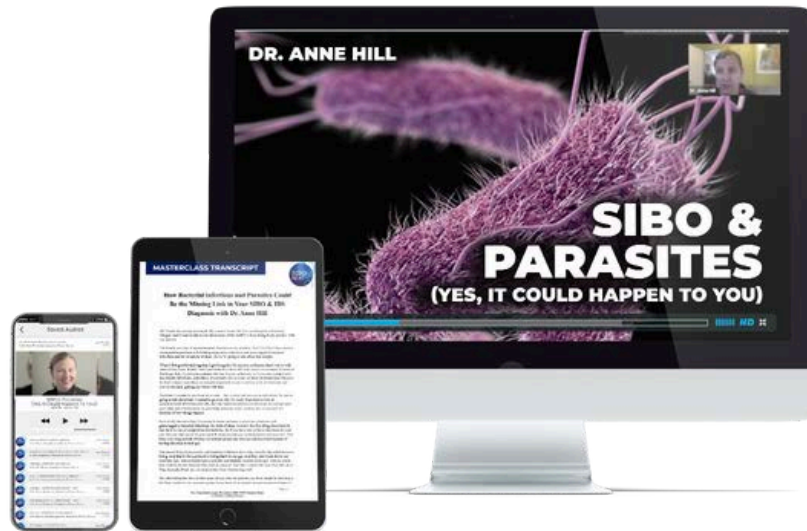
practitioner has experience with finding root causes, SIBO/IMO, parasites, and Candida.

Before we dive into parasites, we'll briefly cover SIBO/IMO and its common symptoms.

Ready to take the next steps?!

HOW BACTERIAL INFECTIONS & PARASITES COULD BE THE MISSING LINK IN YOUR SIBO & IBS DIAGNOSIS

Get instant access to Dr. Anne Hill's Masterclass



GET THE MASTERCLASS

"I learned SO much! The GI-Map is next up in my treatment plan. We have been working on Candida, but I doubt it's gone. Thank you SO much and please come back to educate us more!"

~Betty


Gram-Negative Bacteria & SIBO/IMO: **The Basics**

Gram-negative bacterial overgrowths are caused by bacteria that live in the intestines and secrete toxins. These toxins can cause a range of symptoms, from mild diarrhea to severe dehydration and death.

Gram-negative bacterial overgrowths are caused by bacteria that have a cell wall made up of a substance called lipopolysaccharide. This type of bacteria is often resistant to antibiotics, making these infections very difficult to treat.

The reason I mention gram-negative bacteria is because SIBO/IMO is made of predominantly gram-negative bacteria in the stomach, duodenum, and jejunum. These bacteria are both aerobes and anaerobic species that create a gaseous byproduct by the fermentation of carbohydrates.

As some previously thought, it's not just about location, location, location (bacteria showing up in the wrong area of the body).

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The number one
cause of
SIBO/IMO is
actually food
poisoning!

Dr. Mark Pimentel, MD, is the program director for Medically Associated Science and Technology Program at Cedars-Sinai.

He recently discovered that there are particular bacteria and archaea (single-celled organisms) that could be


responsible for SIBO. These bacteria ferment food and produce hydrogen (bacteria) or methane (archaea), which then cause bloating. Still, other forms produce hydrogen sulfide.

Patients with food poisoning actually have issues with their migrating motor complex (MMC), which cleans the small intestine many times throughout the day—up to 16 times within 24 hours!

You can run lab tests for anti-CdtB and anti-vinculin, which are both antibody indicators of previous food poisoning.

What else can disrupt the MMC?

According to Dr. Allison Siebecker, “Everybody wants to know what turns the migrating motor complex off. So first and foremost, sympathetic nervous system stress will do that. So within our nervous system, we have sympathetic and parasympathetic. In the simplest of forms, sympathetic is fight and flight. And parasympathetic is rest and digest. So the migrating motor complex occurs more with parasympathetic. So if we have a lot of sympathetic. So if we have a lot of sympathetic stress going on, which many people have...

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chronically all the time, that actually inhibits the migrating motor complex. There are studies on this, showing and some of the things they did were things that would stimulate traffic jam situations, not exactly that, but they simulated that in a similar way with stress. So really what to think about what sympathetic stress is would be worrying, fear, anger, and rushing, so those things can turn it off.”

The second thing that can alter the MMC is eating. If you drink or eat any calories of any kind, the MMC will stop for up to two hours after you start eating. Even for something as small as a piece of candy!

Dr. Mark Pimentel explains the groundbreaking study that links food poisoning to SIBO.



“The most common cause of food poisoning in the United States is campylobacter. But we infected animals on the right. This is the placebo group on the left. And then we waited 3 months. So, the food poisoning had to be gone (acute). The campylobacter in the stool had to be gone, meaning they had the food poisoning, they recovered from the food poisoning, and now we wait 3 months (typical for IBS, about three months after the food poisoning is gone, the IBS creeps in).

*“And what we did was we looked at the stools of these animals, and then we looked to see if they had SIBO. And 27% of the rats who had food poisoning had SIBO. But more importantly, the C+ means they got campylobacter. The SIBO+ means now they have SIBO. And then we went back to what their stools were. **And 85% of these animals who were exposed to campylobacter and now have SIBO have sort of a diarrhea-alternating pattern.**”*


So this study is incredibly important... showing that food poisoning can actually cause SIBO.

SIBO/IMO is caused by a number of things including but not limited to:

- 🎯 Food poisoning (as mentioned—this is by far the number one cause!)
- 🎯 Medications that decrease stomach acid production
- 🎯 Surgery that alters the anatomy of the gastrointestinal tract
- 🎯 Diabetes mellitus
- 🎯 Crohn's disease
- 🎯 Scleroderma
- 🎯 Celiac disease
- 🎯 Compromised immunity

Gastroesophageal reflux disease (GERD) is also a risk factor to SIBO/IMO.

SIBO/IMO/IMO is best diagnosed with a breath test (This test measures the levels of hydrogen and methane in your breath. SIBO/IMO cannot be diagnosed with a stool sample or a small intestine biopsy. SIBO/IMO is diagnosed through a combination of medical history, physical examination, and breath tests and/or endoscopy.


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Treatment for SIBO/IMO usually involves antibiotics and probiotics. SIBO/IMO can be a recurring condition, so it's important to make sure you are on a prokinetic after one of the 3 types of treatments. The type of gas that is produced by the overgrowth dictates the treatment. Remember that diet only manages the symptom of SIBO/IMO. If SIBO/IMO is left untreated, it can lead to a number of serious complications and cause other conditions, including it causes other conditions - including anemia, rosacea, restless leg syndrome, B-12 and vitamin issues, malnutrition, weight loss, and electrolyte imbalances. SIBO/IMO can also increase your risk for other infections, such as pneumonia. SIBO/IMO is a serious condition that should be treated by a medical professional.

Some of the biggest signs of SIBO/IMO are bloating and changes in bowel patterns. You can be stuck in a pattern of constipation, diarrhea, or fluctuations between the two.

As you saw in the symptom comparison, it is very difficult to determine whether you have parasites or an overgrowth like SIBO/IMO based on symptomatology alone. This is why it's vital to work with a trusted healthcare practitioner and also test, so you have the data you need to figure out the best protocol and path to vibrant wellness.




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What Are **Signs** You Could Have Parasites?

Symptoms of parasites can mirror symptoms of SIBO/IMO in many ways, so it can be difficult to differentiate and obtain a clear diagnosis, though some parasitic infections tend to affect a larger variety of organs and body systems.

Some experts believe almost anyone would benefit from a parasite cleanse. Dr. Todd Watts describes his approach "is that we all have parasites. If you have a pulse, you have a parasite, it's really easy. You just can go like this or you can go like this, and like, "Yeah, I'm living, I'm breathing; I have a parasite." Many others think it's vital to have data and lab testing to prove this, which we'll cover in a later section!

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Parasites Symptoms

Teeth grinding
Anal itching
Stools containing blood & mucus

Abdominal pain
Cramping and/or distension
Gas and bloating
Food sensitivities
Weight gain
Weight loss
Skin rashes or acne
Fatigue
Histamine/Mast cell
allergy reactions
Constipation
Diarrhea
Muscle pain
Joint pain
Neurological symptoms like
brain fog or confusion
Nausea
Anxiety
Weakness
Depression
Mood swings

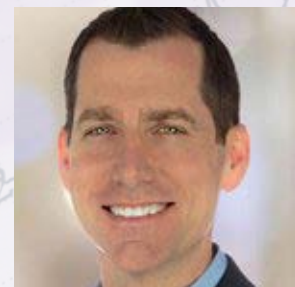
Fullness after eating
Fat malabsorption in stool
Nutritional deficiencies (iron, vitamin
B12, fat-soluble vitamins)

SIBO/IMO Symptoms


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Different parasitic infections have unique symptoms and implications, of course. For example, according to studies, *Toxoplasma gondii* infections are caused by a very common parasite transmitted from undercooked meat, cat feces, or transmission through pregnancy. This particular parasite can increase the likelihood of both suicide attempts and traffic accidents. Parasites can affect mood and behavior immensely.²

According to **Dr. Todd Watts**, “There's multiple parasites. So we always think all these big, long worms, tapeworms, but they can be... Strongyloides is about one millimeter, so 0.9 millimeters for a male and 2.5 millimeters for females. So they're very small and they can get into a lot of spots within the body, especially through the intestines. And they're a small intestinal parasite, stomach parasite that causes a lot of allergies and probably the number one cause of migraines and headaches.”



If you're having mysterious symptoms and still looking for your diagnosis, be patient. There are so many types of parasites and bacteria you could be dealing with, but the important part is that you're here! You're learning!

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² <https://pubmed.ncbi.nlm.nih.gov/31010440/>


Parasites & Our Modern World

Are parasitic infections more common now than they were 50 or 100 years ago? Or do we just have better technology and treatments available to us?

Perhaps it's a byproduct of our modern world. Certain bacteria (for example, pseudomonas) can metabolize glyphosate. Glyphosate is the broad-spectrum herbicide in Roundup®, meaning it's abundant in non-organic and genetically-modified foods. So if we're seeing more pseudomonas on stool testing, is it because we're giving them the food and sustenance they need to survive? Could the same be true about parasites?

Now that it's clear parasites are a widespread issue, let's discuss how to tell if they're a root cause for you, personally.

It's important to test, don't guess. As Dr. Todd Watts believes, most (if not all) people struggle with this particular issue to some degree, but there are limitations on testing as well, which we'll discuss later.

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Parasitic Infections: The Basics

Approximately 3.5 billion people worldwide suffer from parasitic infections. These infections are caused by tiny, parasitic organisms that invade the human body and live off of its nutrients. Gram-negative bacterial overgrowths are another type of issue that can be extremely dangerous. These infections are caused by bacteria that are resistant to many common antibiotics.

Parasitic infections are caused by parasites, which are tiny organisms that live off of other organisms. These parasites can cause a variety of diseases, ranging from mild to deadly.

They're caused by parasites that enter the body through contaminated food, water, or contact with an infected person or animal.

- ⊕ Food, especially undercooked beef, pork, or raw fish
- ⊕ Poor food hygiene
- ⊕ Drinking water
- ⊕ Bug bites
- ⊕ Travel
- ⊕ Showers
- ⊕ Lakes, rivers, ponds, or ocean
- ⊕ Pets
- ⊕ Money
- ⊕ Soil/gardening
- ⊕ Stool
- ⊕ Touching infected surfaces
- ⊕ Sexual contact

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Some people with parasitic infections have strong immune systems and their bodies do well keeping them in check.

Still others are dealing with multiple other root causes and the overgrowth can spiral out of control.




Dr. Ilana Gurevich explains this phenomenon: “All of my patient population, I treat a lot of people with chronic infectious disease. And those are all patients that I know have compromised immune systems. And so, maybe before they got Lyme, or maybe before they got

cancer, they would’ve fought off that Giardia or the Cryptosporidium really easily. But now they can’t anymore because their immune system is not working quite so well.”

It’s difficult for anyone dealing with a parasitic infection to understand just how they work in the body. Some days, you might feel almost like your “normal self.” Some days, you might be so sick that you wonder if you’ll ever feel better. This is particularly frustrating and can lead to a lot of emotional issues. (You are not crazy! It is not all in your head!)

Dr. Anne Hill explains this phenomenon well: “So as much as we want to say parasites are... prehistoric and they’re not that smart, they have survival mechanisms that they will suck you dry of nutrients. They will bring your life force, your energy, your mitochondrial energy, they’ll disrupt your GI tract down, but typically not to the




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point of killing you because if they take you down, then they don't have a host to live in. So parasites are very adaptive.”

Parasite symptoms can cycle. They can make you feel like all hope is lost, like they're invading the sacred temple of your body.

It's important to remember that they're not here to kill you. That's not what they want. They will use up all your body's resources and your energy, so sometimes treatment becomes necessary. You can shift your mindset to think about parasites as benign. They're not trying to harm you. They're just trying to stay alive, too!

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A microscopic view of biofilms, showing various colored structures (yellow, green, pink) that represent communities of microorganisms. The structures are interconnected and form a complex, porous network.

Biofilms

Biofilms are communities of microorganisms, like bacteria, parasites, viruses, or even fungus, that attach to surfaces in the body. These biofilms secrete a protective matrix of exopolysaccharides and extracellular DNA, which sometimes has a sticky consistency like glue. It's important to note that both "good" and "bad" microorganisms come together in these village-like biofilm "slimes."

Biofilms can be strong and cyst-like, soft like snot, and hard like the plaque on your teeth you get scraped off every six months at the dentist. Biofilms offer protection to whatever microorganisms are hiding underneath. They're shelter against harsh conditions, high pH, lack of water, temperature changes, and more. A parasite, for example, encased in biofilm has the chance to wait until the right opportunity to begin wreaking havoc on your body.

In general, biofilms can be found in a variety of environments, including freshwater, marine, and soil ecosystems. They play an important role in the ecology of these systems, providing shelter and nutrients for other organisms. However, biofilms can also cause problems for humans, as they can act as hosts for parasites and pathogens.

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In the human body, biofilms are found all over:

- 🎯 In your teeth (plaque is an archetypical example of a biofilm)
- 🎯 Sinuses
- 🎯 Other mucosa
- 🎯 Lungs
- 🎯 Skin
- 🎯 Around implants, heart valves, and catheters
- 🎯 Many other places!

Biofilms and parasites go hand-in-hand. Just as biofilms provide a protective layer for the microorganisms within them, they can also provide a safe haven for parasites. These parasites can use the biofilm as a source of food and shelter, and in some cases, they can even reproduce within the biofilm.

This can be a problem for humans, as parasites can cause diseases that have debilitating symptoms, and biofilms make the parasites much harder to treat. Herbs and antibiotics have trouble penetrating the films to reach the source of the infection. Biofilm also provides a perfect environment for the growth of bacteria that produce acid, changing the body's pH.



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One common reason people do not respond to parasite protocols is because of these biofilms. Dr. Ilana Guervich describes this issue with multiple different treatment paths: “Antimicrobials including antibiotics will often fail to penetrate a biofilm. And bacteria will change their genes to make themselves more resilient. Biofilm species or these infections will often go through an acute period when things are really bad, and then a quiet period when your symptoms are feeling better.”

A person might initially respond to antibiotic therapy, but relapses happen really frequently. With biofilms, parasites are relatively protected from the antimicrobial effects.

Because of this, it's important to take supplements that bust biofilms so that parasites won't have a place to hide. Supplements containing enzymes that break down the biofilm matrix are available and can be effective in preventing parasites from taking up residence in your body.

In addition, **probiotics** can help to prevent the growth of biofilms by competing with the bacteria that make up the biofilm for space and nutrients.




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The following supplements can help disrupt biofilms:

- 🍃 Turmeric
- 🍃 [Biocidin by Biobotanical](#)
- 🍃 Quicksilver Scientific LSF
- 🍃 Apple cider vinegar
- 🍃 Oregano oil
- 🍃 Cinnamon

Biofilms are a wider issue than just simply parasitic infection. According to Dr. Ilana Guervich, “Depending on what data you look at, we think that somewhere between 65% to 85% of all chronic infections are caused by biofilms.”




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Parasites and Heavy Metals/Viruses

It's important to note there's a clear connection between parasites and heavy metals. Parasites are known to absorb and store heavy metals in their bodies, which can help them resist environmental stressors. This ability to hold onto heavy metals may also explain how parasites can survive in areas with high levels of pollution. Additionally, parasites may be able to transfer heavy metals to their hosts, which could have harmful consequences.

While parasites can help remove heavy metals from the environment, they can also contribute to pollution. For example, when parasites are released into the water through sewage, they can introduce heavy metals into aquatic ecosystems. This can potentially lead to the accumulation of heavy metals in fish and other animals that live in these ecosystems.

Studies on fish and marine life in the ocean show parasites absorbing heavy metals, including lead, cadmium, and others, which is important research we need to pay attention to.³

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³ <https://pubmed.ncbi.nlm.nih.gov/17326849/>


According to Dr. Ilana Gurevich, “There’s actually not a ton of studies in PubMed about the correlation between human infections and heavy metals, but there’s a ton with waterways. And we definitely know that a lot of the waterways that have become polluted tend to have a lot of heavy metal in them. And also, there’s a huge correspondence with an increase in the growth of parasites.



“So, we sort of have to consider that that’s maybe a reason why or part of the issues with when we have a lot of parasites in our system but that’s also going to be problematic, either that we have a lot more heavy metals in our body or that our body is trying to get rid of or that the parasites themselves have a lot of heavy metals. And so when we’re going to be doing killing and detoxification of that, we have to account for doing some kind of heavy metal chelation when we’re doing these protocols.”

According to **Dr. Ilana Gurevich**, “There’s actually not a ton of studies in PubMed about the correlation between human infections and heavy metals, but there’s a ton with waterways. And we definitely know that a lot of the waterways that have become polluted tend to have a lot of heavy metal in them. And also, there’s a huge correspondence with an increase in the growth of parasites.

While it is still not clear how exactly the parasites acquire these heavy


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metals, it is believed that they may bind to certain proteins in the host's body or simply absorb them through their cell membranes. Once they have taken up these metals, they can then use them for various purposes, such as storage or protection from predators.

While most parasites do not appear to be harmed by the heavy metals they absorb, there is some evidence that suggests that this accumulation of toxins could eventually lead to health problems for the parasites. In addition, the presence of heavy metals in the parasite's body can also make it more difficult for the host to fight off infections.

Overall, this research provides new insight into how parasites can accumulate heavy metals in their bodies and highlights the potential risks that these toxins may pose to both the parasites and their hosts. Conversely, others believe these parasites are actually behaving symbiotically by absorbing the impact of the metals so the host is not as affected.

Anyone embarking on a parasite cleanse should also take into account the impact of heavy metals on their body, which could be released during the detoxification process. There are many gentle ways to bind toxins like this in the body, including HM-ET by CellCore. It's important to always work with a trusted practitioner any time you're addressing parasites, heavy metals, or any of other type of chronic infection

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What Does Gut Health Have to Do with Chronic Illness? What Do Parasites Have to Do With SIBO/IMO?


So now that you know a bit more about parasites and SIBO/IMO, why is that important?

You've probably heard the statistic a hundred times: 70% of your immune system is in the gut... so if you're dealing with SIBO/IMO or parasites, or a combination of the two, then it can throw your immune system off-balance and cause a number of fluctuating symptoms, including histamine reactions or food sensitivities.

It's important to first understand the body's innate immune response.

The innate immune response is the first line of defense against infection and is mediated by a variety of cells, including macrophages, natural killer cells, and dendritic cells.

Th1 and Th2 are two different types of T helper cells that play opposite roles in the immune response.

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Th1 cells are involved in fighting intracellular bacteria and viruses, while Th2 cells help to fight extracellular parasites. Each type of cell produces a different set of cytokines that can either promote or inhibit inflammation. The balance between these two processes is critical for maintaining health.

If the balance is shifted too far in one direction or the other, it can lead to disease. For example, if Th1 cells are predominant, it can lead to autoimmune diseases like Type 1 diabetes and multiple sclerosis. On the other hand, if Th2 cells are predominant, it can lead to allergies and asthma.

Parasites and SIBO can throw off the balance of Th1 and Th2 cells and lead to chronic inflammation. This can eventually lead to a variety of health problems that can be vague and confusing to diagnose, like food allergies, fluctuating food sensitivities, histamine reactions, and Mast Cell Activation Syndrome (MCAS).

Also relevant to note here is the presence of lipopolysaccharides (LPS) in gram-negative bacteria. LPS decreases butyrate, cell junctions weaken, and affects gut health and the immune system as well, creating leaky gut.

When there is inflammation in the gut, body systems down the line start to deteriorate.

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Conjugation is a phase 2 liver detoxification process. It involves binding toxins to nutrients or other molecules so that they can be safely eliminated from the body. Phase 2 conjugation may help protect the body from some of the harmful effects of toxins and may also help the body eliminate toxins more effectively.

We can think of this process in analogy, as described by Dr. Ilana Guervich:

“I always kind of liken this to New York City when the garbage workers went on strike. So it’s like we’re taking all the garbage out to the curb, but there’s nobody that’s picking it up.

“And then, what happens is, of course, as the garbage starts to collect, and nobody is getting rid of it, now what happens is, because our gut is really good at absorbing things back into the system that it needs to—or in this case, that it doesn’t need to, but it’s just kind of getting overwhelmed—now all of those toxins that are already gathered, put into garbage guts and put into our gut are now actually spilling over and getting into our system.

“So, all of this inflammation—and *ROS* is reactive oxidative species. That’s one of the things that we create. That shows we actually help get things out of our bodies. These things then start to create vascular permeability. And so what that means is that all of our blood vessels get really leaky. And they need to do that because they need to carry

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white blood cells and histamine and all of these things that are going to cause the inflammatory response to fight off whatever it thinks is going on and why there are all these things that should not actually be getting into our system that should be staying in our gut.”


Then we can get into a tough cycle that causes a domino effect of inflammation and chronic illness, all because we’re not addressing the root causes of parasites of SIBO/IMO.

Other things can weaken the immune system, too, of course, allowing parasites to be able to proliferate.

Researchers and clinicians have found many connections between particular parasitic infections in patients with SIBO/IMO, which is why it’s vital to point out that these can co-exists.

For example, many SIBO/IMO patients have *Dientamoeba fragilis*.

Dientamoeba fragilis is a protozoan parasite that causes diarrheal illness in humans. It is one of the most common parasites found in the human intestine, and is estimated to infect up to 50 million people worldwide. The parasite is typically spread through contaminated food or water, and can cause symptoms such as abdominal pain, cramping, diarrhea, and nausea. *Dientamoeba fragilis* is often difficult to diagnose because it does not show up on standard stool tests.


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This, according to Dr. Anne Hill, can also be common in patients who have had pinworms in the past, which they were treated for. But the pinworms could be harboring *Dientamoeba fragilis*, so even if the initial infection is treated, there can still be parasites left behind!

Another common crossover is *Blastocystis hominis* with SIBO/IMO patients. It's extremely difficult to get rid of.

Blastocystis hominis is a single-celled protozoan that lives in the intestines of humans and animals. It is spread through contaminated food or water, contact with infected animals, or person-to-person contact.

Symptoms of *Blastocystis hominis* infection include abdominal pain, diarrhea, nausea, and vomiting. In severe cases, the parasite can cause weight loss, anemia, and malnutrition. So even if you've been diagnosed with or suspect SIBO/IMO, it's worth it to also look into a parasitic infection in conjunction.

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Parasite Testing and Diagnosis

Parasite testing is a controversial topic, as many believe tests are inaccurate for a number of reasons. Conventional parasite testing is called Ova and Parasites testing, or O&P. This is a stool test that is collected at home or in a healthcare facility. A clinician then looks at the stool sample (stained with dye) under a microscope to see if there are any parasites or eggs present. It's important to take the collection in a sterile environment, typically done with latex gloves on.

Dr. Ilana Guervich states that these tests can be between 8-20% accurate.

The downside to this type of testing is that they are testing such a small section of the stool sample, so you might have had parasites in another area of the stool that did not make it onto the microscope slide.

Also, the technician is only looking for a short period of time, so some positive results may be overlooked.

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Dr. Jay Davidson explains, “But the interesting thing about parasites, first of all, not all of ‘em are just in your GI tract. So if you do a stool analysis, they can be in the reproductive system. They can be in the bladder. They can be systemic in the body. They can

be in your brain. I mean, they can be all over the place. So, first off, not all parasites are in the GI. Second off, if you do a stool test, it’s good to do multiple stool samples of that test, because the chance of a parasite coming out in one stool is not likely.

But the complex thing is, when a parasite dies... certain types of parasites, when they die, they’ll release an enzyme that dissolves their body. If you do a stool test, and then it’s, I don’t know, it’s a Thursday, right, and you ship it off on Friday. Ships over the weekend, the lab gets it on Tuesday. The technician eventually gets it too on Thursday. So, you’re basically seven days later when you did the stool test. It’s very possible that, if there was a parasite on the sample, it is now gone because of the enzyme and breaking it down.”

So a conventional O&P test may not find a parasitic infection... but what about a stool test run by a functional medicine practitioner?

For the reasons stated above, even functional PCR stools tests with cutting-edge technology can miss them, though they definitely give you more useful data.

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And the truth is, if a few different pathogens show up on any of the following tests, even at low levels of concentration, you most likely have an entire colony of them living in your body. In that way it's similar to an air sample for mold – A few spores of *Stachybotrys chartarum* show up in your result and you likely have a serious problem somewhere behind your walls.


GI-MAP

The GI MAP is a stool test that can be used to assess overall gut health. It measures various parameters, including the presence of parasites, in order to give a comprehensive overview of gut health. The results of the GI MAP can help to identify potential problems and enable targeted treatment.

The GI MAP measures the following parameters:

- ✓ The presence of parasites
- ✓ The level of inflammation
- ✓ The level of GI barrier function
- ✓ The level of immune function

This test also looks at beta-glucuronidase, which is an indicator of a bacterial infection. They look at secretory IgA, which gives insight into what your immune system looks like in your gut. There are a number of very useful markers in this test.

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Each of these parameters is important in assessing gut health and the results of the GI MAP can help to identify potential problems. The test is simple to administer and can be done in the comfort of your own home. All you need is a stool sample and the GI MAP kit, which can be ordered online with your trusted practitioner.


If you are concerned about your gut health or if you have any symptoms that may be associated with gut problems, then the GI MAP may be a helpful tool for you. It can give you a comprehensive overview of your gut health and enable you to start taking steps to improve your gut health.

[Click Here to Get the GI-Map through Rupa Labs](#)

Doctor's Data

Dr. Anne Hill: "The other main lab, Doctor's Data is a big one that a lot of the functional medicine doctors and naturopaths use. And Doctor's Data uses this MALDI-TOF mass spectrometry. I like that a lot. I actually use that for a lot of kids. Most kids, I'm not thinking, "I want to rule out worms and Giardia" because most kids, especially under five, probably have not traveled around the world yet or have gone to Africa.

"So, I'm really just looking more for what pathogenic bacteria they get from their moms. When women give birth, our vaginal

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secretions are basically what inoculates that child's gut. And so I want to see what sorts of pathogenic bacteria maybe that child got from their mom. And because it's a wonderfully sterile gut, if there's a really pathogenic bacteria there—like Strep is a big one that I find in a lot of kids, and Klebsiella and Citrobacter (we're going to talk about these)—those things can tend to take over and grow in a kid's gut and cause a lot of stomach pain and cause a lot of problems, cause a lot of immune problems with their gut.


“So, I will use the Doctor's Data test especially for kids under five.”

[Click Here to Get Doctor's Data through Rupa Labs](#)

Parawellness

When speaking about traditional stool tests, Dr. Anne Hill states, “That's not something I typically recommend unless it's done by a parasitologist. And there is one guy in Colorado that I will refer people to a lot, Dr. D'Angelo and he's with Parawellness Research. And he often finds things that other labs can't. So I like using him.”

A clinical diagnosis with consideration of exposure and symptoms, used hand-in-hand with any sort of lab testing, is the best way to discover if you have a parasitic infection.

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Immunoglobulin Testing

Some practitioners might use immunoglobulin testing like DiagnoTex or others to help diagnose parasitic infections.


Immunoglobulins are a class of proteins that play a key role in the immune system. They are produced by B cells and are responsible for protecting the body against infection and disease. Immunoglobulins can be divided into five main types: IgA, IgG, IgM, IgD, and IgE. Each type has a unique structure and function.

Immunoglobulin A (IgA) is the most abundant immunoglobulin in the body. It is found in mucous membranes, such as the respiratory tract and gastrointestinal tract, where it provides protection against bacteria and viruses.

Immunoglobulin G (IgG) is the most common immunoglobulin in the blood. It provides protection against bacterial and viral infections.

Immunoglobulin M (IgM) is a large immunoglobulin that is found in the blood. IgM is the first immunoglobulin to be produced in response to an infection. It provides protection against bacteria and viruses.

Immunoglobulin D (IgD) is an immunoglobulin that is found on the surface of B cells. IgD helps to activate B cells when they come into contact with antigens.

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Immunoglobulin E (IgE) is an immunoglobulin that is involved in allergic reactions. IgE binds to allergens, such as pollen or dust, and triggers the release of histamine. Histamine causes the symptoms of an allergic reaction, such as sneezing and itching.

Here's a word of caution: immunoglobulins are measuring our immune system's response to a bug. There's no clear way to know if that's a parasite or bacteria we've encountered in the past and already fought off or if it's a current infection causing us issues. This can be a tool in the toolbox, but likely not a way to diagnose it and of itself.

Provocation Testing

A note about testing: Sometimes it's beneficial to perform something called a **provocation protocol** for about **a week prior** to administering your stool test.

The concept is simple: Take a supplement that can bust biofilms and release the colonies of parasites and microorganisms living underneath, so there's a greater chance they will show up on your stool test.

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One supplement to use during provocation is [Interfase Plus by KlairiLabs](#), but there are many others that also work.

Of note, it's also a good idea to have your practitioner **test your liver enzymes** as you're working through a parasite cleanse, especially if you're using strong pharmaceutical drugs.



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Parasite Treatment Order

As far as treatment order, some practitioners like to treat from big to small: worms, yeast, then fungi. Treatment-wise, this could mean antibiotics first, antiparasitics, herbs, then yeast supplements. Some other practitioners like doing it the opposite way, so it's important to find a protocol that works for you and your body, as designed by your practitioner.

Regarding the timing of cleansing, many suggest cleansing around the lunar cycle to maximize the impact of your protocol.

Since parasites can be transmitted sexually or through stool (and unwashed hands), it might be important to note that your partner or the entire family may want to embark on a parasite cleanse together.

And if you're wondering when to start, studies have shown that there is a correlation between the full moon and an increase in parasitic activity, but researchers aren't sure why. This may be because the full moon provides more light, which makes it easier for parasites to find their hosts. Parasites are also more active at night, so the full moon may simply provide them with more time to feed. Finally, the moon


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can decrease melatonin, which is another factor in the seeming proliferation of symptoms during that time.

If you're trying a parasite cleanse, you can start 2-3 days before the full moon and continue for 2-3 days after. Also, if you're new to cleansing, you want to make sure you're starting low and slow, supporting your body's drainage pathways, and taking binders to help mop up any toxins released in the process.

Another useful tip in treatment is to try a sandwich protocol, where you rotate different treatments and herbs. The sandwich protocol starts with one herb, then switches to another, then back to the first to be sure to capture the entire lifecycle of the parasite.

Please note: As you're cleansing, you may not see parasites in the toilet like you see with [Mimosa Pudica Seed](#) on TikTok! Many parasites are microscopic. It doesn't mean that your protocol is not working. It's important to get a functional doc versus doing it all yourself.

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Herxing

What is Herxing?

Herxheimer reactions, also known as Jarisch–Herxheimer reactions, are often experienced when undergoing treatment for parasitic infections. These reactions occur as the body attempts to rid itself of the infection, and can cause a range of symptoms that sometimes seem viral or flu-like. In some cases, Herxheimer reactions can be severe. However, some practitioners consider mild discomfort a positive sign, as they indicate that the treatment is working. Herxheimer reactions typically resolve within a few days to a week. Again, please work with a healthcare practitioner to guide you safely through this process.

Herxheimer reactions can occur when large numbers of parasites are killed off rapidly, resulting in the release of toxins into the body. The body then reacts to these toxins, producing cytokines like **IL-6**, **TNF-alpha**, and **IL-8**.

Cytokines are proteins that coordinate the immune response by regulating the activity of cells. They are produced by a variety of cell types, including cytokine-producing cells, and can act on nearby cells

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to influence their behavior, leading to the symptoms mentioned above.

Herxheimer reactions are more likely to occur in those with a weak immune system, or who are undergoing particularly aggressive treatment. However, they can occur in anyone undergoing treatment for a parasitic infection.

Symptoms of a Herxheimer reaction include:


- ✚ Fever
- ✚ Vomiting
- ✚ Chills
- ✚ Diarrhea
- ✚ Headache
- ✚ Irritability
- ✚ Extreme fatigue
- ✚ Shakiness
- ✚ Nausea
- ✚ Neurological symptoms
(like brain fog)
- ✚ Muscle & joint pain



How do I combat Herxheimer reactions?

There are many things you can do to avoid or ameliorate a herx. The first is making sure all of your body's drainage pathways are supported: the liver, colon, gallbladder, kidneys, lymphatic system, and even your body's mitochondria.

The second thing you can do is take a **binder**, like BioToxin Binder CellCore or activated charcoal. Binders can adsorb toxins, surrounding them and escorting them safely out of the body. When


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activated charcoal is taken orally, for example, it binds to toxins and prevents them from being absorbed into the bloodstream. This can help to detoxify the body and reduce the risk of harmful effects from exposure to toxins.

Binders also help eliminate toxins from your bile, which is expensive energy-wise to make. Your body wants to recycle bile to conserve this energy, but when it's filled with toxins, that can take a toll on your organs of detoxification.

Staying hydrated is also a key to parasite cleansing, as well as **resting**. You can also try **coffee enemas**, **castor oil packs**, and **infrared saunas**. Try to give your body the restoration it needs and speak to your practitioner if you experience any symptoms.



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Supplements or Next Steps

Some practitioners recommend a pharmaceutical approach to parasite cleansing, while others like to try herbs and tinctures first. Some like a combination of the two.

According to Dr. Ilana Guervich, “It is generally my preference to use natural antimicrobial agents as opposed to antibiotics. I don’t a hundred percent do that. But I’m much more likely to go natural if I can.

“The reason for that is because the herbs have their own set of antibiofilm and antimicrobial properties. One of the things that the herbs do is interfere with quorum sensing and cell-to-cell signaling. They will block adhesants. And adhesants promote the building of that EPS structure. They’ll improve motility. They will reduce the production of the ECT layer.

“They’re also biosurfactants. They make everything slimier and soapy. And that will prevent the adhesant to start the biofilm formation. That will alter cell permeability. It will improve intestinal permeability. And it


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will down-regulate quorum sensing. And it will also upregulate the immune response of the human. So it has all these protective factors and not a ton of risk.”

One popular supplement is Mimosa pudica seed, which comes from.

Mimosa pudica seed is commonly used as a natural remedy for parasites. The seeds contain various compounds that are effective against parasites, including mimosine and quercetin. A [study in 2010](#) showed that mimosa pudica seed extract was able to kill off various types of parasites, including Giardia, Ascaris, and Trichuris, and another study showed its effectiveness against Ascardidia galli specifically.

Dr. Todd Watts of CellCore Biosciences and Microbiome Labs explains how Mimosa Pudica works: “It's a new product that specifically, the seed of this plant, helps to start just peeling stuff out of the bio digestive system and cleaning it up. It's a gut scrubber. It's great for anti-parasitic and bacterial things. People use it for Lyme disease, as a supportive product in that area. But more, I was specifically focused on the gut and how to get that microbiome fixed, all this toxin buildup and mucoid plaque, or biofilm buildup is what I refer to. That's how you're going to get down deep to get those things out of there when you can't get access to it? So, you have to clean it out, you have to pull it all out. And also now, the villi and all the bacteria get exposed so that we need to rebalance in that process.”

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It's a fairly gentle way to get started on cleansing and is well-tolerated by most!

There are many other types of herbs and tinctures for parasite cleansing:



Garlic is a well-known herb that has many health benefits. It has been used traditionally to treat parasites due to its anthelmintic properties, including effectiveness against cryptosporidium.




Black walnut is another herb with antiparasitic properties that oxygenates the blood. It contains high levels of tannins and "naphthoquinone", also known as juglone.



Wormwood is an herb that has been used to kill parasites in the gut. Its oil is commonly used in absinthe and vermouth, with thujone being the active ingredient. Thujone excites the central nervous system, which can be overstimulating for some.



Clove is an herb that has been traditionally used to treat parasites due to its anti-parasitic properties. The eugenol in clove can actually bust through any biofilms surrounding the parasites or hard casings around their eggs.

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Cistus is a biofilm breaker and also can be used during flu season to help fend off viruses. It has both antifungal and antibacterial properties. The easiest form to consume is tea, but it comes in a tincture as well.




Black cumin seed is an immunomodulator and can be used for H. pylori and other bacteria and parasites. It's also anti-inflammatory and antifungal. You may see it also called Nigella sativa.



L-Arginine can be useful to use in parasite cleansing because infections can decrease levels. You have to be careful because L-Lysine and L-Arginine have an antagonistic relationship where the balance between the two can be easily thrown off. Supplementing with L-Arginine would not be a good idea for someone with a high viral load.

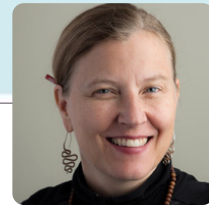


Pharmaceuticals can be used as well, including Pyrantel Pamoate, Nitazoxanide, Paromomycin, Tinidazole, and many others.

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ANTI-PARASITIC MEDICATIONS

- Pyrantel pamoate-pinworms, whipworms (OTC)
- Nitazoxanide (Alinia) (crosses BBB)-Cryptosporidium, Giardia, C. diff. associated diarrhea
- Praziquantel(Biltricide)-Schistosomiasis, Tapeworm
- Paromomycin-Amoebas, Dientaomeba fragilis (off label)
- Albendazole (crosses BBB)-Taenia solium, Echinococcus (tapeworms)
- Mebendazole-Ascariasis
- Tinidazole-Amebiasis, BV, Trichomonas, H.Pylori
- Ivermectin-helminths-Strongyloidiasis, Onchocerciasis
- Iodoquinol-Amebiasis



This reference slide was taken from Dr. Anne Hill's [How Bacterial Infections and Parasites Could Be the Missing Link in Your SIBO & IBS Diagnosis Masterclass](#)

Supportive Therapies



Castor oil packs: Soak unbleached cotton flannel in organic, cold-pressed, hexane-free castor oil. Place it over your liver, cover in a thin towel, and apply heat. The idea is that the essential fatty acids within the castor oil help naturally encourage detoxification of the


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liver. It's vital to support the drainage pathways and organs in the body when parasite cleansing: the liver, gallbladder, colon, kidneys, lymphatic system, and the glymphatic system, which is a recently discovered pathway of perivascular tunnels that clear waste from the Central Nervous System (CNS), mostly while you sleep. For the most part, castor oil packs are a gentle and effective way to support the body while cleansing from parasites.

[Get Dr. Marisol Teijeiro's Castor Oil Pack & Dry Brush Detox Kit here](#)




Coffee enemas: Coffee enemas can be used to detoxify the body and open the bile duct system, flushing stagnant bile from the liver and gallbladder. Coffee enemas work because the hemorrhoidal veins in the descending colon dump into the portal system via the hepatic portal vein. The coffee uses the hepatic portal vein as a direct connection to the liver. The caffeine and choloretics present in coffee cause the liver and bile duct system to release bile into the colon and increase the flow of bile. This allows your body to use the bile created in your liver to get rid of toxins.

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Bile is expensive, energy-wise, to create, so your body likes to reuse it. But the problem is, your bile contains toxins, so when your body does recycle it, it recycles the toxins as well... possibly leaving you feeling fatigued and ill. (The solution? Take a binder before and after your coffee enema. This will help ensure the toxins are grabbed and transported out of the body.) Coffee enemas encourage your body to produce new, clean bile.

Anyone with a chronic illness, or parasites (which is almost everyone!), could use help optimizing their drainage and cleaning out the liver and gallbladder. Parasites of all kinds love to live in the bile duct, and when it's clogged, you'll start noticing you don't feel well. You might have bloating, constipation, abdominal pain (especially the upper right quadrant), diarrhea, loss of appetite, and other symptoms similar to gallbladder attacks. Coffee enemas help get the liver and bile working optimally.

If you're extremely sensitive or have been chronically ill for quite a while, it's a good idea to start with water enemas and work your way up to a diluted coffee enema blend, held for shorter periods of time. As always, I recommend working with a trusted healthcare practitioner whenever making any changes to your protocols or therapies.

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Infrared saunas: When you think of saunas, you probably think of sweat – and for good reason. Infrared saunas raise your core body temperature with light and heat therapy, instead of just heating the air like traditional saunas. Bugs (like Lyme and parasites) and cancer cells all hate the heat, and most can't survive over a certain temperature.

Even if you aren't dealing with a chronic disease, you're still dealing with toxins. We accumulate so many toxins just by living in the world today, from our food, the air, beauty products, household cleaners, off-gassing products from stores... no one is immune.

Sweating is a great way to get these toxins out of our bodies, and saunas can induce sweating comfortably, without heating the air to an unbearable temperature like traditional saunas do. Your skin is your biggest organ, so sweating through your skin is an effective way to mitigate the effects of our toxic world.

Saunas heat the body's core temperature, meaning when you take one, you're detoxifying at the cellular level (where the toxins live). The infrared technology also penetrates into the skin, reaching fat tissue, muscles, and even organs – detoxifying the whole body.

[Get the infrared sauna device of your choice from Therasage here](#)

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A Note from Shivan

I know that was a ton of information! I hope you are not overwhelmed. I know, I know - it is a lot! Breathe. Better? What is your next step? A test? Good idea! Click here to get the GI-Map Test through [Rupa Labs](#)... and then get treating! If you are ready, the masterclass we did with Dr. Anne Hill that covers so much of this topic is excellent. I hope you will join us to learn more!

There is hope and there are answers!

You deserve to be well,

Shivan Sarna



When you're ready to take the next step...

Discover the Proven Steps to Treating & Beating SIBO + Coaching!

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Bloating - with or without pain

- Activated Charcoal - absorbs gas
 - Dose: up to 2 every 2-3 hours, away from meals, supplements, medications if possible (for absolute maximum relief)
 - can cause constipation and darkened stool
- Simethicone (Gas X) - breaks gas into smaller bubbles, allowing better movement, does not remove gas
 - Dose: follow label dosing
- "Tberogas"
- Dose: 200 drops with meals as needed & for 30-60 drops at bed

Small Group Coaching Sessions (optional)

Downloadable audio
Listen on the Go!

GET MORE HELP!