

# Gut Treatment Dysbiosis and Parasites Review

Botanicals often have activity against multiple classes of pathogens. So the core botanical protocol we talked about in the SIBO treatment would also have activity against fungi and parasites.

The cause of dysbiosis is not necessarily the overgrowth of pathogens or the presence of pathogens. It is **more often the lack of beneficial microorganisms** that can protect against the overgrowth of commensal bacteria or the invasion of pathogenic organisms.

Thus, we recommend a two-stage treatment approach:

- First stage is to eradicate or reduce pathological organisms.
- Second stage is to restore a healthy gut microbiome.

In most cases of dysbiosis, except significant fungal overgrowth, we typically do a short period of antimicrobials followed by a **more significant focus on restoring the healthy gut microbiome**.

## CORE BOTANICAL PROTOCOL FOR DYSBIOSIS, MILD FUNGAL OVERGROWTH, AND PARASITES

### Botanical protocol for **dysbiosis** & **mild fungal overgrowth**

Nutreaceutical	Dosage
<b>GI Synergy</b>	1 packet BID with breakfast and dinner
<b>Lauricidin</b>	1 scoop TID with each meal
<b>Interfase Plus</b>	3-4 capsules BID on empty stomach
<b>SEED Daily Synbiotic</b>	2 capsules at bedtime
<b>TerraFlora</b>	One capsule with lunch

The typical treatment course is 30 to 60 days, followed by a gut restoration protocol.

## ADDITIONS FOR MODERATE TO SEVERE FUNGAL OVERGROWTH

Nutreaceutical	Dosage
<b>A-FNG (Byron White Formulas)</b>	Slowly build to 10 drops daily w/meals, as tolerated
<b>Biotin</b>	5 mg (5,000 mcg) per day with meals
<b>Molybdenum</b>	200 mcg TID with meals
<b>Activated charcoal (or PectaSol if patient is constipated)</b>	2-6 capsules taken away from other medications and food (or 2-4 capsules PectaSol)

### A-FNG (Byron White Formulas)

- Tends to work very well even in recalcitrant cases.
- **Can cause a lot of Herxheimer (die-off) reactions**, so you'd want to start them with just **1 drop a day and build up slowly**.
- See handout for specific dosing instructions.

### Biotin

- Has antifungal activity at a higher dose of 5 milligrams, or 5,000 micrograms per day.

### Molybdenum

- Assists in the conversion of acetaldehyde to acetic acid.
- Acetaldehyde blocks B6 from interacting with biochemical enzymes and can react with neurotransmitters like dopamine and serotonin, then accumulates in the tissue and causes pain and inflammation.

### Activated charcoal

- Can bind to fungal cell wall toxins.
- Helps if patients have experienced a lot of detox symptoms on this protocol.
- Can make constipation worse in a patient who already has it or cause it in a patient who doesn't. In that case, PectaSol, which is modified citrus pectin, is an alternative that can actually help with constipation.

## CONCERNS REGARDING ROTATING MEDICATIONS TO TREAT FUNGAL OVERGROWTH

1. First, there's not much support in the scientific literature for the concept of fungal overgrowth as a major cause of symptoms in immunocompetent patients.
2. Second, though nystatin is generally well tolerated and fairly safe, other antifungal drugs are potentially dangerous, especially to the liver.
3. Third, a paper published in 2015 in the *Journal of Medical Chemistry* found that many antifungal drugs are not as efficacious as we've been led to believe.

## DIET FOR FUNGAL OVERGROWTH

			
“Anti-candida diet” unnecessary and may even exacerbate problem	Some research suggests yeast can thrive on ketones	Paleo Reset is good starting place	Some patients need to reduce/remove starch

### Strict anti-candida diets

- Can be ketogenic due to their extremely low carbohydrate level; some research indicates that yeast can thrive on ketones.
- We recommend a Paleo Reset Diet for fungal overgrowth.
- Some patients with fungal overgrowth react to starchy plants, so they may benefit from temporarily limiting those during treatment.
- You can consider rifaximin for severe dysbiosis due to pathogenic bacteria that doesn't respond to botanical protocol.
  - Several studies looking at rifaximin for treatment of IBS and inflammatory bowel disease, even when breath tests for SIBO are normal, found that patients improved significantly.
  - So there's some reason to believe it could work for dysbiosis on its own.

### PARASITES

- Treatment depends on several factors such as: which parasite it is, how certain you are it's contributing to pathology, your scope of practice, the patient's history, whether the patient has tried other treatments, and the composition of the patient's gut flora.

- Other markers on the Doctor’s Data stool test can be useful to determine whether treatment is necessary. For example, if a patient has Blastocystis, and several markers for inflammation and malabsorption are elevated, it’s more likely that Blasto is pathogenic and should be treated.
- The most common parasites include Blastocystis, D. fragilis, giardia, and Cryptosporidium. Other common parasites include commensals or non-pathogenic organisms like Endolimax nana and Entamoeba coli, which often do not require treatment.

**In most cases, and especially if other gut pathology like SIBO and dysbiosis are present, we’ll start patients with the core botanical antimicrobial protocol, shown on the preceding pages.**

- **GI Synergy** has antiparasitic herbs in it.
- **Lauricidin** is antiparasitic in addition to being antifungal, antiviral, and antibacterial.
- **Probiotics** in the protocol generally create a less hospitable environment for pathogens, and also the bacillus species that are found in TerraFlora secrete potent antimicrobial peptides.
- We typically suggest a **minimum of 60 days for antimicrobial protocols if parasites are present and contributing to pathology.**

## PINWORMS

Intervention	Dosage
<b>Pyrantel pamoate (Pin-X)</b>	11 mg/kg with max 1g

### Pin-X:

- Available over the counter. It is inexpensive and usually given in a single dose.
- Close to 100% efficacy if two doses are given two weeks apart.
  - The first dose kills the live organisms. Then the second dose kills the ones that hatched from the eggs in the interim period.
- **Reinfection is common despite effective therapy because it can be shared among family members. Treat the entire household simultaneously.**
- Also, all **bedding and clothes should be washed** and hygienic measures like clipping fingernails, frequent handwashing, and baths can also be helpful for reducing reinfection.

## BLASTO & D. FRAGILIS

<b>Blasto &amp; D. Fragilis</b>	
<b>Nutraceutical</b>	<b>Dosage</b>
<b>GI Synergy</b>	1 packet BID (with breakfast and dinner)
<b>Lauricidin</b>	1 scoop TID with each meal
<b>Interfase Plus</b>	3-4 capsules BID on empty stomach
<b>SEED Daily Synbiotic</b>	3 capsules at bedtime
<b>TerraFlora</b>	One capsule with lunch
<b>Saccharomyces boulardii</b>	One BID upon rising and before bed

Use the core botanical protocol with the addition of **Saccharomyces boulardii** at 250 milligrams twice a day. Look for a **dairy-free** brand such as FloraStor or Saccharomycin DF.

There are some studies that showed that **Saccharomyces boulardii** can increase the risk of **complications in immunocompromised patients**, so use caution in patients with risk factors for adverse events such as those who have intravenous catheters or increased bacterial translocation, structural GI problems, or severe immune dysregulation.

### First-line pharmaceutical treatment for Blasto/D. fragilis

<b>Intervention</b>	<b>Dosage</b>
<b>Nitazoxanide (Alinia)</b>	500 mg BID for 10–30 days

If the botanical treatment plus *S. boulardii* fails for Blastocystis, or the patient can't use it for some reason, the next step to consider would be a **drug called Alinia or nitazoxanide**. Alinia tends to be very well tolerated with few side effects.

**Follow-up pharmaceutical treatment for Blasto/D. fragilis**

<b>Nutraceutical</b>	<b>Dosage</b>
<b>Iodoquinol (Yodoxin)</b>	325 mg TID with meals for 10 days
<b>Nitazoxanide (Alinia)</b>	500 mg BID with meals for 10 days
<b>Paramomycin</b>	500 mg TID with meals for 10 days

The Centre for Digestive Diseases (CDD) in Australia has developed a triple-drug therapy, shown above, that their internal research shows is almost 90 percent effective.

- These are all antiparasitic drugs with efficacy against Blasto, D. fragilis, and other organisms.
- The protocol is fairly well tolerated in our experience.
- The patient can order these medications from the CDD in Australia.
- It requires a prescription and a physician letter.

However, we would typically advise this only if one or more rounds of the botanical protocol and Alinia have failed.

**BOTANICAL PROTOCOL FOR GIARDIA**

<b>Follow-up pharmaceutical treatment for Blasto/D. fragilis</b>	
<b>Nutraceutical</b>	<b>Dosage</b>
<b>Iodoquinol (Yodoxin)</b>	325 mg TID with meals for 10 days
<b>Nitazoxanide (Alinia)</b>	500 mg BID with meals for 10 days
<b>Paramomycin</b>	500 mg TID with meals for 10 days

First line is the core botanical protocol with S. boulardii.

## PHARMACEUTICAL PROTOCOL OPTIONS FOR GIARDIA

Intervention	Dosage
<b>Albendazole</b>	400 mg QD for 5 days
<b>Tinadazole</b>	2 g single dose
<b>Nitazoxanide</b>	250 mg BID for 3 days
<b>Saccharomyces boulardii</b>	3-4 billion CFU BID

1. If the botanical treatment fails, consider one of the following three options:
2. **Albendazole** 400mg once a day for five days;
3. **Tinadazole** single dose of 2 grams;
4. **Nitazoxanide**, 250mg three times a day for three days.

In each of these, add **S. boulardii** at **250mg twice a day or 3 to 4 billion CFU**.

Giardia infection can recur, so you may need to follow up with additional courses of any of these medications two weeks later.

Some patients may need extended treatment; botanical protocols in between drug therapies may reduce the likelihood of developing resistance and adverse effects.

**CRYPTOSPORIDIUM BOTANICAL TREATMENT**

<b>Cryptosporidium botanical treatment</b>	
<b>Nutriceutical</b>	<b>Dosage</b>
<b>GI Synergy</b>	1 packet BID (with breakfast and dinner)
<b>Lauricidin</b>	1 scoop TID with each meal
<b>Interfase Plus</b>	3-4 capsules BID on empty stomach
<b>SEED Daily Synbiotic</b>	3 capsules at bedtime
<b>TerraFlora</b>	One capsule with lunch
<b>Saccharomyces boulardii</b>	One BID upon rising and before bed

Again, start with the core botanical treatment plus *Saccharomyces boulardii*.

**PHARMACEUTICAL TREATMENT FOR CRYPTO**

<b>Intervention</b>	<b>Dosage</b>
<b>Nitazoxanide (Alinia)</b>	500 mg BID for 3 days

If the botanical treatment fails, studies show that Alinia clears it in about 70 to 90 percent of cases.

In recalcitrant cases, consider combining botanical therapy with Alinia.

**In some cases in which Blasto, Giardia, or Crypto keep recurring, treatment of family members may be necessary.**



## CORE BOTANICAL PROTOCOL FOR H.PYLORI

<b>Core protocol</b>	
<b>Nutreaceutical</b>	<b>Dosage</b>
<b>GI Synergy</b>	1 packet BID (with breakfast and dinner)
<b>Lauricidin</b>	1 scoop TID with each meal
<b>Interfase Plus</b>	3-4 capsules BID on empty stomach
<b>SEED Daily Sybiotic</b>	3 capsules at bedtime
<b>TerraFlora</b>	One capsule with lunch

First consider a dietary and/or botanical treatment to reduce colonization and virulence without necessarily eradicating H. pylori entirely.

**Botanicals in plants that have shown activity against H. pylori include:** garlic, oregano, magnolia, commelia, alcornia, bacopa, propyllis, hydrocatis, salvia, curcumin, Nigella sativa, resveratrol, licorice, and artemesia, to name a few.

A combo product like **GI Synergy** is a great choice.

### Lauricidin

- Fatty acids like medium-chain triglycerides have shown substantial activity against H. pylori.
- One study found that “H. pylori is rapidly inactivated by medium-chain triglycerides and lauric acid, and exhibits a relatively low frequency of spontaneous development of resistance.”
- **Lauricidin** is monolaurin, which is a concentrated form of lauric acid.

### InterFase Plus

- Studies have shown that H. pylori can form biofilm, and biofilm may be one of the primary drivers of resistance and treatment failure.
- Therefore, biofilm disruptors increase efficacy and reduce the chances of resistance.

**TerraFlora:** have species in them that secrete antimicrobial peptides that can be helpful against H. pylori.

## H. PYLORI: ADDITIONS TO CORE PROTOCOL

<b>H. Pylori: additions to core protocol</b>	
<b>Nutriceutical/Dietary intervention</b>	<b>Dosage</b>
<b>Sulforaphane</b>	150 mg BID with breakfast and dinner
<b>DGL</b>	750 mg BID empty stomach
<b>Mastic gum</b>	500 mg BID empty stomach
<b>Saccharomyces boulardii</b>	3-4 billion CFU BID at lunch and before bed
<b>100% cranberry juice</b>	500 mL per day
<b>Eat cruciferous vegetables</b>	As much as tolerated; preferably at least 2 cups/d

**Saccharomyces boulardii** has activity against H. pylori.

### Sulforaphane

- Broccoli sprouts are one of the best studied compounds with activity against H. pylori.
  - They also reduce inflammation caused by H. pylori.
- Studies suggest that sulforaphane is the most likely active compound in broccoli sprouts.
- Eating cruciferous vegetables can be beneficial because of the compounds that they have in them, like sulforaphane.

### Licorice

- Several studies show that licorice is as effective as bismuth in the eradication of H. pylori in patients with ulcers.
- Deglycyrrhizinated licorice (DGL) can help with eradication of H. pylori, but it also has soothing effects on the gut lining and can help with reflux symptoms.

### Mastic Gum

- Has also been shown to be beneficial in some studies.

### 100 percent cranberry juice

- Has been shown to be helpful, since it reduces adhesion of bacteria against mucosal surfaces.

I suggest a **treatment duration of 30 days with this protocol, followed by a retest.**

**If the results are still positive**

- Treat for another 30 days, and add **apolactoferrin** at a dose of 300 milligrams twice a day. Apolactoferrin is a natural antibiotic found in cow’s milk that binds iron, which H. pylori needs to thrive.

**Three conditions for pharmaceutical treatment of H. pylori**

1. Peptic ulcer disease;
2. Gastric malt lymphomas;
3. Strong family history or other risk factors for gastric cancer.

**FIRST-LINE DRUG TREATMENT FOR H. PYLORI**

Medication	Dosage
<b>PPI (lansoprazole, omeprazole, pantoprazole, etc.)</b>	Dose depends on medication used
<b>Amoxicillin</b>	1 g BID
<b>Clarithromycin</b>	500 mg BID

The first-line treatment consists of a triple therapy using a PPI, or ranitidine bismuth citrate, combined with clarithromycin and amoxicillin, or metronidazole for those with penicillin allergy, all given twice daily for one to two weeks. Failure rate from this treatment is anywhere between 10 and 24 percent.

## AUGMENTED DRUG TREATMENT FOR H. PYLORI

You could consider improving the efficacy by adding InterFase Plus (biofilm disruption), Lauricidin (has biofilm activity and MCTs), sulforaphane, *S. boulardii*, and apolactoferrin as seen below:

<b>Augmented drug treatment for H. pylori</b>	
<b>Medication</b>	<b>Dosage</b>
<b>PPI</b>	Dose depends on medication used
<b>Amoxicillin</b>	1 g BID
<b>Clarithromycin</b>	500 mg BID
<b>Interfase Plus</b>	3 capsules BID on empty stomach
<b>Lauricidin</b>	1 scoop TID with each meal
<b>Sulforaphane</b>	150 mg BID with breakfast and dinner
<b>Saccharomyces boulardii</b>	3-4 billion CFU BID at lunch and before bed
<b>Apolactoferrin</b>	300 mg BID on empty stomach

## SECOND-LINE DRUG TREATMENT FOR H. PYLORI

<b>Medication</b>	<b>Dosage</b>
<b>PPI</b>	Dose depends on medication used
<b>Bismuth subsalicylate</b>	524 mg QDS
<b>Metronidazole</b>	250 mg QDS
<b>Tetracycline</b>	500 mg QDS

The second-line pharmaceutical treatment would be a quadruple therapy, which consists of the above medications.

Tetracycline is a very broad-spectrum antibiotic, and doing this protocol would be expected to have a substantial impact on the gut microbiota. So, I would recommend adding some of the agents from the nutraceutical botanical protocol.

Unfortunately, recurrence of *H. pylori* is common. Therefore, you should consider testing and/or treating your patient's family members and/or partners.