KRESSER INSTITUTE FOR FUNCTIONAL AND EVOLUTIONARY MEDICINE

# Gut Treatment GERD and IB Review

The most important focus in these conditions is to address all of the underlying pathologies that we've reviewed so far.


## GERD

- Caused by malfunction of the lower esophageal sphincter, or LES, which allows acid to reflux into the esophagus.
- I agree with microbiologist Dr. Norm Robillard's theory, which is that carbohydrate malabsorption leads to bacterial overgrowth, which in turn causes an increase in gas production, intra-abdominal pressure, and leads to a malfunction of the lower esophageal sphincter.

What might be causing the carbohydrate malabsorption in the first place?

- I believe that cause, in many cases, is low stomach acid (hypochlorhydria).
- Stomach acid inhibits bacterial overgrowth.
- It is well-documented that acid-suppressing drugs promote bacterial overgrowth.
- Stomach acid supports the digestion and absorption of carbohydrates by stimulating the release of pancreatic enzymes into the small intestine.
    - The fermentation of carbohydrates that haven't been digested properly is what produces gas. The resulting gas increases intra-abdominal pressure, which is the driving force behind reflux and GERD.

# How we approach treating GERD

### 1. REDUCE FACTORS THAT PROMOTE BACTERIAL OVERGROWTH AND LOW STOMACH ACID.

Proton pump inhibitors (PPIs) and other acid-suppressing drugs, chronic stress, H. pylori or other GI infections, pernicious anemia, hypothyroidism, gastritis, and nutrient deficiencies.

### HOW/WHEN TO STOP PPIS?

- In some cases, the patient will be able to stop cold turkey if they switch to a Paleo very-low-carb diet and start taking HCl and enzymes.
- In other cases, you have to address the underlying pathologies like SIBO, H. pylori, nutrient deficiency first, and then transition the patient off of the PPIs afterwards.
- If patient has been on the drugs for a long time, you may need to titrate off the acid blockers gradually because their endogenous production of stomach acid has been suppressed for such a long time.

Reduce consumption of carbohydrates and/or poorly absorbed carbohydrates if SIBO or hypochlorhydria is present.

### REDUCING CONSUMPTION OF CARBOHYDRATES THAT FEED BACTERIA IN THE SMALL INTESTINE:

We typically start with a lower-carb Paleo diet as a foundation, and then we might add low-FODMAP recommendations if they are not getting the success that we would like.

### HIGH FODMAP FOODS

| Excess fructose | Lactose | Fructans | Galactans | Polyols |
|---|---|---|---|---|
| **Fruit:** apple, mango, nashi, pear, tinned fruit in natural juice, watermelon | **Milk:** milk from cows, goats or sheep, custard, ice cream, yogurt | **Vegetables:** asparagus, beetroot, broccoli, brussels sprouts, cabbage, eggplant, fennel, garlic, leek, okra, onion (all), shallots, spring onion | **Legumes:** baked beans, chickpeas, kidney beans, lentils | **Fruit:** apple, apricot, avocado, blackberry, cherry, lychee, nashi, nectarine, peach, pear, plum, prune, watermelon |
| **Sweeteners:** fructose, high fructose corn syrup | **Cheeses:** soft unripened cheeses eg. cottage, cream, mascarpone, ricotta | **Cereals:** wheat and rye in large amounts eg. bread, crackers, cookies, couscous, pasta | | **Vegetables:** cauliflower, green capsicum (bell pepper), mushroom, sweet corn |
| **Large total fructose dose:** concentrated fruit sources, large serves of fruit, dried fruit, fruit juice | | **Fruit:** custard apple, persimmon, watermelon | | **Sweeteners:** sorbitol (420), mannitol (421), isomalt (953), maltitol (965), xylitol (967) |
| **Honey:** corn syrup, fruisana | | **Miscellaneous:** chicory, dandelion, inulin | | |

Another option is a low-fermentation potential diet.

Fermentation potential is a measure of how likely carbohydrates are to be fermented by intestinal microflora. Carbohydrates that are rapidly absorbed high up in the small intestine are given a low FP.

Foods are categorized low, medium, or high in terms of their propensity to feed GI microbes.

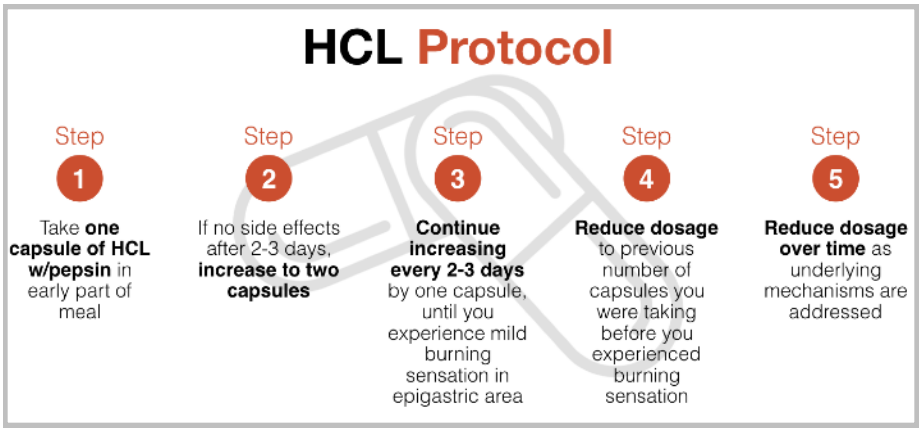
## AVOID FOODS WITH MODERATE OR HIGH FERMENTATION POTENTIAL (FP)

| Vegetables | Fruits | Starches | Other |
|---|---|---|---|
| Green peas | Banana | Green plantain | Milk |
| Jerusalem artichoke | Blueberry | Taro root | Fruit juice |
| | Apple | Basmati rice | Beer |
| | Cherries | Sweet potato | |
| | Payaya | Yam | |
| | Passionfruit | Yuca *(cassava)* | |
| | Persimmon | | |

**Start with a low-FODMAP diet.** It is less restrictive and healthier for beneficial bacteria in the colon. If symptoms don't improve sufficiently, consider adding low-fermentation potential on top of low FODMAP. This should only be used therapeutically short term and is not intended for use while the patient is on an antimicrobial protocol.

# 2. Replace stomach acid, digestive enzymes, and key nutrients for digestion and health.

Acid replacement: Betaine HCl (not recommended if ulcers or gastritis are present or highly suspected), bitter herbs, or apple cider vinegar.




HCl should never be taken, and this HCl challenge should never be performed by anyone who is using any kind of anti-inflammatory medication such as corticosteroid, prednisone, aspirin, ibuprofen, or other NSAIDs.

- Digestive enzymes: Protease/pepsin, amylase, glucoamylase, lipase, ox bile, etc.
- Nutrients: Depends on need but may include niacin, chloride, sodium, potassium, zinc, and iodine.

# 3. Restore beneficial bacteria and a healthy mucosal lining in the gut.

Using probiotics, prebiotics, fermented foods, etc. Consider supplements to aid in GI mucosal healing like GI Revive or GastroMend from Designs for Health.

## GERD TREATMENT SUMMARY:

| | | | |
|---|---|---|---|
| **STEP ONE** | Identify & address SIBO & other pathologies | Transition patient off acid-suppressing drugs | Consider low-carb, low-FODMAP, or low-FP diet |
| **STEP TWO** | Replace/stimulate stomach acid | Replace/stimulate bile & enzymes | Replace nutrients required for acid, enzymes, bile |
| **STEP THREE** | Restore gut ecosystem | Repair gut mucosal lining | |

## IRRITABLE BOWEL SYNDROME (IBS)

- A diagnosis of exclusion; when diseases such as IBD, GERD, or diverticulitis that have a structural effect on the gut are ruled out.
- Symptoms must be present for at least three months, with onset at least six months previously.
- Symptoms of recurrent abdominal pain or discomfort associated with two or more of the following: improvement with defecation and/or onset associated with a change in frequency or consistency of the form of stool.

## POTENTIAL CAUSES OF IBS

| | |
|---|---|
| Gluten/food intolerance | Toxins (biotoxins, heavy metals) |
| SIBO | Temporomandibular disorder |
| Disrupted gut microbiome | Immune dysregulation |
| Infections | Intestinal permeability |
| Hypochlorhydria | Genetic polymorphisms |
| Gut-brain axis dysfunction | |

## HOW WE APPROACH TREATING IBS:

**Diet: Paleo framework:**

- Identify gluten and other food intolerances.
- Low-FODMAP is one of the most effective treatments according to the scientific literature.
- Long-term low-FODMAP diet may have undesirable effects without some other interventions like advising the patient to take soluble fibers that feed the beneficial gut flora.
- Remove all FODMAPs to begin with, then have the patient try to add back as many of them as possible.
- Insoluble fiber recommendations:
    - Do not eat insoluble fiber foods on an empty stomach.
    - Eat them with foods that contain soluble fiber.
    - Blend or cook high insoluble fiber foods to make them easier to break down.

**Peppermint oil:**

- Shown promise in studies for relieving the symptoms of IBS.
- Active ingredient is L-menthol.
    - Has anti-inflammatory and antioxidant properties.
    - Shown to decrease gas, bloating, and pain and increase stool consistency and frequency.
    - IB Guard may be a good brand.

**Gut-directed hypnotherapy:**

- Mechanism: helps the gut-brain axis. No side effects,
- Tons of studies on it, and response rate varies but averages over 50 percent.
- Home recordings option includes Michael Mahoney's HelpForIBS.com website.

**Stress management practices that have been shown to be effective for IBS:**

- Mindfulness-based stress reduction
- Deep relaxation techniques
- Yoga and tai chi

**Probiotics:**
I have found that the safest and most tolerated and most effective overall choice as a probiotic for IBS is soil-based organisms or transit commensals like Prescript-Assist or MegaSporeBiotic.
Tailor probiotics based on symptoms or presentation, see examples in the chart below:

| Best probiotics for constipation | Best probiotics for loose stools / diarrhea |
|---|---|
| Soil-based organisms | Soil-based organisms |
| Transient commensals | Transient commensals |
| E. coli Nissle (MutaFlor) | Saccharomyces boulardii |
| Lactobacillus plantarum (Ideal Bowel Support) | VSL#3 |
| Bifidobacteria infantis | Elixa |

**Soluble fiber:**

- Has been shown to provide benefit for patients with IBS.
- It soothes and regulates the digestive tract, stabilizes the intestinal contractions resulting from the gastrocolic reflex, and normalizes bowel function.
- Feeds beneficial bacteria and is particularly important if a patient is consuming a low-FODMAP diet.
- A lot of the soluble fibers, like PHGG, citrus pectin or glucomannan, are not considered to be FODMAPs, but they do feed beneficial bacteria.

**Rifaximin:**
I recommend trying everything else that we talked about, both in addressing the underlying causes and also in addressing the symptoms which we just mentioned, before resorting to rifaximin, but it can be very effective, and it's safe.

**Relief for gas, bloating, spasms, and pain**
Digestive bitters, peppermint oil ginger and Atrantil, can be helpful.

## CONSTIPATION REMEDIES

| Intervention | Notes |
|---|---|
| **Magnesium glycinate** | 200–600 mg/d<br>(caution with higher doses over long term) |
| **Magnesium citrate** (e.g. Natural Calm) | 1–2 tsp before bed; can also help with sleep |
| **Soluble fiber** | Glucomannan, PHGG, citrus pectin, acacia<br>(as directed by manufacturer; start slowly & build up) |
| **Probiotics** | L. plantarum, B. infantis, SBOs, kefir, fermented foods (start slowly and build up) |
| **Vitamin/electrolyte blend** (e.g. Ageless Hydro-C) | Vitamin C, Mg, K, Ca<br>(as directed on website/bottle) |
| **Prokinetics** | Iberogast, MotilPro, LDN, low-dose erythromycin |
| **Ozonated magnesium** | i.e. Mag 07 (as directed; avoid long-term use) |
| **Atrantil** | 2 capsules three times a day |

## INTERVENTIONS FOR LOOSE STOOL/DIARRHEA

| Interventions | Notes |
|---|---|
| **Soluble fiber** | Glucomannan, PHGG, citrus pectin, acacia<br>(higher doses may be required) |
| **Probiotics** | SBOs, transient commensals, S. Boulardii, VSL#3, Elixa<br>(as directed by manufacturer) |
| **GAPS diet** | See IBD section for more info |
| **Rifaximin** | May be taken repeatedly if necessary<br>(for IBS-D, start with 10-14 day course) |

## SUMMARY OF RECOMMENDATIONS FOR IBS

| Intervention | Comments |
|---|---|
| **Modified Paleo diet** | Avoid gluten & grains; regulate insoluble fiber and FODMAPs |
| **Peppermint oil** | Over-the-counter formulations, or IBgard |
| **Stress management** | Gut-directed hypnotherapy, mindfulness-based stress reduction (MBSR), etc. |
| **Probiotics** | Should be customized according to patient symptoms |
| **Soluble fiber** | Soothes digestive system and improves stool frequency and consistency |

## INFLAMMATORY BOWEL DISEASE (IBD):

- Includes Crohn's disease and ulcerative colitis (UC).
- Thought to be autoimmune diseases.
- Current theory is that the body inappropriately attacks commensal bacteria, which leads to altered gut bacteria, inflammation, and intestinal permeability.
- Risk factors for IBD include genetic predisposition, antibiotic use, and infection.

## THREE MAIN CONSIDERATIONS WITH IBD:

1. Address gut pathologies.
2. Address immune triggers and focus on balancing and regulating the immune system.
    a. Identify food intolerances.
    b. Consider 60 days of an autoimmune Paleo protocol (AIP), which removes eggs, nightshades, and dairy strictly.
3. Other triggers to consider would be heavy metals, mold, or biotoxins, and chronic stress HPA axis activation.

## SPECIFIC PROTOCOLS FOR MANAGING IBD:

- If diarrhea is severe and/or AIP doesn't work, try GAPS diet.
    - See GAPS diet handout

    - Concern of starving out beneficial bacteria on a long-term GAPS diet.
- Increase butyrate levels.
    - Butyrate is a short-chain fatty acid that is anti-inflammatory.
    - Produced by beneficial bacteria, especially Bifidobacteria in the colon
    - If a patient is having a flare or active disease condition, we might recommend about 3 to 5 g of supplemental butyrate a day.
    - If the disease is not active, you could use prebiotics and fermentable fibers to increase butyrate production.
- Glutathione
    - Helps promote T-regulatory cell production and differentiation.
    - Glutathione levels have been shown to be low in patients with autoimmune disease, including IBD.
    - Liposomal glutathione at a dose of 1 to 2 teaspoons a day on an empty stomach is recommended.
- Vitamin D levels are normal
    - Vitamin D is a T-regulatory cell promoter as well, and it probably explains part of why low vitamin D is associated with IBD.
- Curcumin
    - Anti-inflammatory and promotes T-regulatory cell function and differentiation.
    - Curcumin is not very absorbable when it's taken orally. There is controversy about what the most bioavailable form of curcumin is.
    - We currently use:
        - Optimized Curcumin Longvida from ProHealth; two capsules a day for seven days and then one capsule a day thereafter.
        - Liposomal curcumin, Seeking Health, 2 teaspoons per day for seven days, and then 1 teaspoon per day thereafter.
- Colostrum
    - First milk produced after birth.
    - Rich in immunoglobulins, antimicrobial peptides like lactoferrin and lactoperoxidase, and other bioactive molecules including growth factors.
    - The preferred form is Tegricel, dose is 500 to 600 mg three times a day.
    - Colostrum is about 9 percent lactose, so be careful if the patient is lactose intolerant.

## PROBIOTICS FOR MANAGING IBD:

- VSL#3
    - Combination of Bifidobacteria, Lactobacillus, and Streptococcus strains.
- Elixa DS, contain 900 billion beneficial bacteria and require a prescription
- MegaSporeBiotic and soil-based organisms like Prescript-Assist work well for IBD.
- Saccharomyces boulardii can help in patients with diarrhea.
- E. coli Nissle
    - More effective for constipation.
    - Must be ordered from Germany.
- Fecal microbiota transplant, or FMT, is being investigated for IBD.
    - Approved by the FDA for antibiotic-resistant C. difficile.
    - Offered at Taymount Clinic. Our results have been pretty good overall, although mixed, some people not improving and a couple even getting worse
- Low-dose naltrexone has been shown to be effective for Crohn's in small studies.
- Rifaximin has shown promising results in inducing remission of Crohn's and UC.
- Elemental diet can be an effective treatment for Crohn's, especially during flare-ups.

## INDUCING REMISSION / TREATING ACTIVE FLARE OF IBD

| Intervention | Notes |
|---|---|
| GAPS Intro or Elemental Diet | Either can be effective; elemental for 2-3 weeks only |
| Rifaximin | 1,650 mg/d (550 TID) for 12 weeks |
| Butyrate | Sodium-potassium form (3-4 g/d) & prebiotics |
| Probiotics (& FMT*) | VSL#3, Elixa, MegaSporeBiotic, Prescript Assist, Mutaflor (E. Coli Nissle 1917) |

## MAINTAINING REMISSION / ONGOING TREATMENT FOR IBD

| Intervention | Notes |
|---|---|
| **Low-dose naltrexone** | 4.5 mg used in studies; 1.5–3 mg most used in practice |
| **Probiotics (& FMT*)** | VSL#3, Elixa, MegaSporeBiotic, Prescript Assist, Mutaflor (E. Coli Nissle 1917) |
| **Curcumin** | NovaSOL, BCM-95, liposomal, Theracurmin |
| **Glutathione** | Liposomal form best; 2 tsp per day |
| **Colostrum*** | Tegricel form best; 1.5 g/d |
| **Vitamin D** | Aim for serum level of 40-60 ng/mL |