



PILLARS OF GI HEALTH

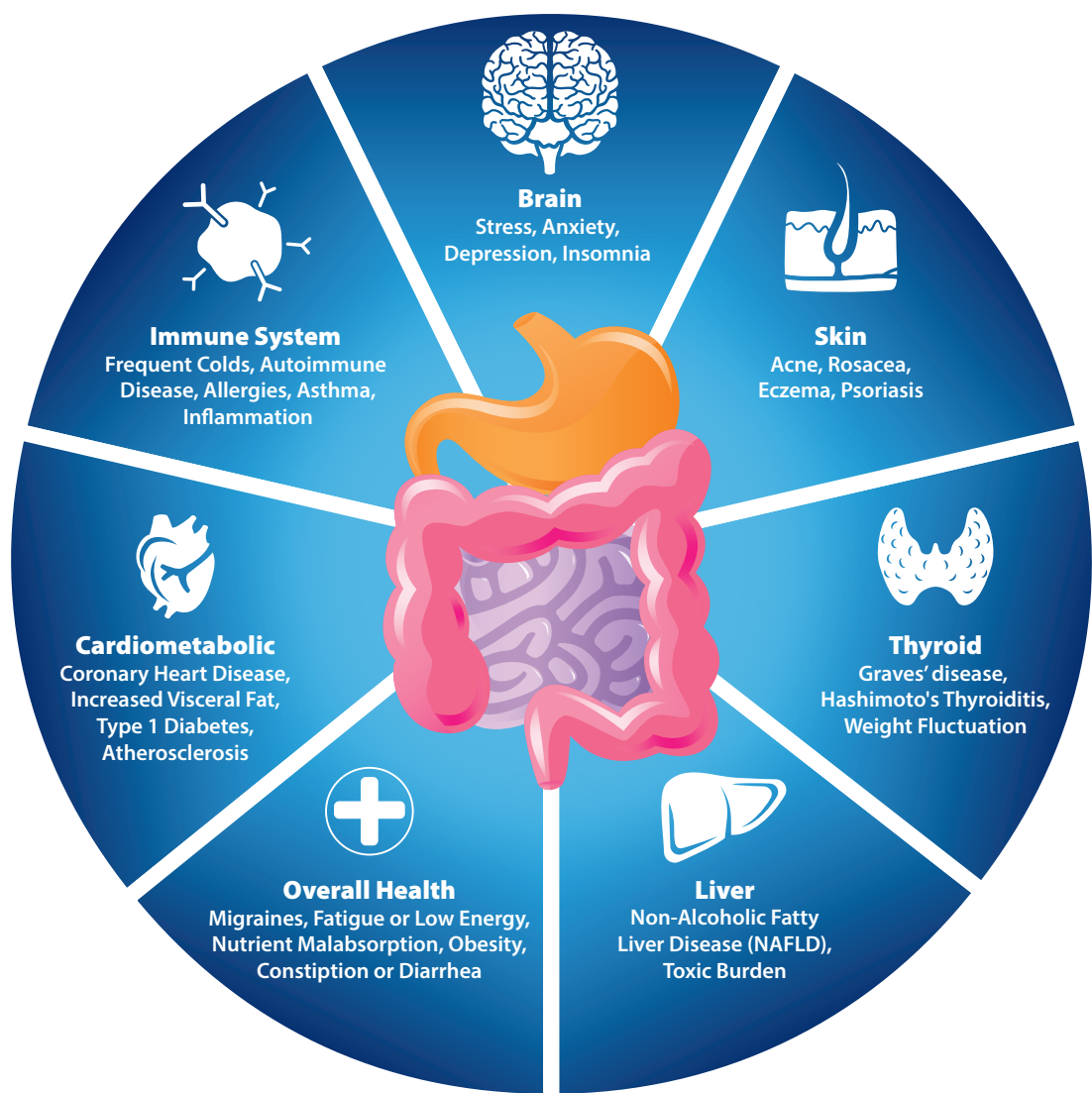
In-Practice Guide

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Introduction to the Gastrointestinal System

The role of the gastrointestinal system and its contribution to health and disease has gained much momentum over the years and has become a key area of focus for clinicians all over the world. In our lifetimes, we will consume between 30 to 50 tons of food and host more microbial cells in our gut than human cells in the rest of our bodies. The GI tract is tasked with the responsibilities of extracting the appropriate nutrients we need to thrive, maintaining an appropriate balance of helpful and harmful microbes, and acting as a conduit for waste removal. At the same time, the healthy GI tract prevents the entrance of harmful substances into the body. Because of the association between the GI system and the rest of the body, dysfunction in the gastrointestinal system can lead to many, seemingly unrelated, chronic conditions that may be best addressed after (or along with) known gastrointestinal dysfunctions.



One of the most common phrases used within naturopathic, functional and related integrative medical communities is “heal the gut first.” This reminds clinicians of the frontline role the gastrointestinal system plays in nearly every facet of health. While reading this guide, it is necessary to recognize that restoring and maintaining bodily homeostasis begins and ends with proper gastrointestinal function.

The Pillars of GI Health

The GI tract is responsible for extracting the nutrients needed to thrive and maintain an appropriate balance of helpful and harmful microbes, while at the same time working with the immune system to prevent the entrance of harmful substances into the bloodstream. The GI tract has core functions, which we call the Pillars of GI Health. The health of the entire gastrointestinal system is built upon these pillars and their interrelationship.

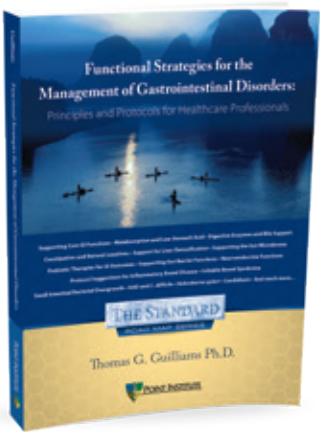
When all pillars are working properly and in harmony with one another, few symptoms are likely to occur. However, when one area is compromised, it places strain upon the other components. It can be difficult to determine which area triggered the downfall, since the relationship between each of these functions is interdependent. Understanding the role each pillar plays in gastrointestinal health will help you determine the root cause of dysfunction and make appropriate recommendations for your patients.

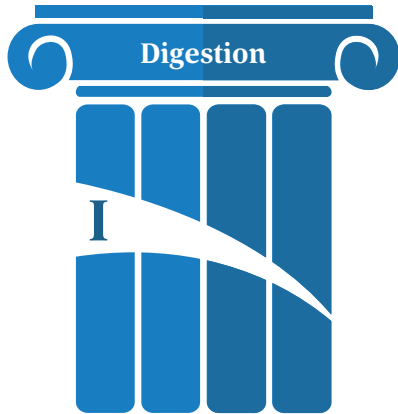
The Pillars of GI Health Program provides clinical tools and a framework to help you weave through the many complex chronic gastrointestinal complaints seen today. It takes a patient-centered lifestyle and functional medicine approach that offers unique tools to guide your assessment, as well as valuable resources to help you educate and reinforce important lifestyle and functional medicine concepts with patients.

This In-Practice Guide acts as a reference to help you find the underlying factors affecting these patients, providing clinical case studies and protocols for some of the most challenging cases, small intestine bacterial overgrowth (SIBO), IBS, IBD, GERD and more. The clinical case studies in this guide include patient overviews, first office visits and subsequent follow-ups, sample lab tests, treatment protocols and therapeutic lifestyle intervention strategies.

Additional Educational Resources

The Pillars of GI Health In-Practice Guide provides an overview of gastrointestinal dysfunction, clinical case studies and protocols. The Standard Road Map, *Functional Strategies for the Management of Gastrointestinal Disorders*, provides a comprehensive review of core functions of the GI system and the latest research on this topic. It serves as an excellent companion to this guide and references to it are found throughout.

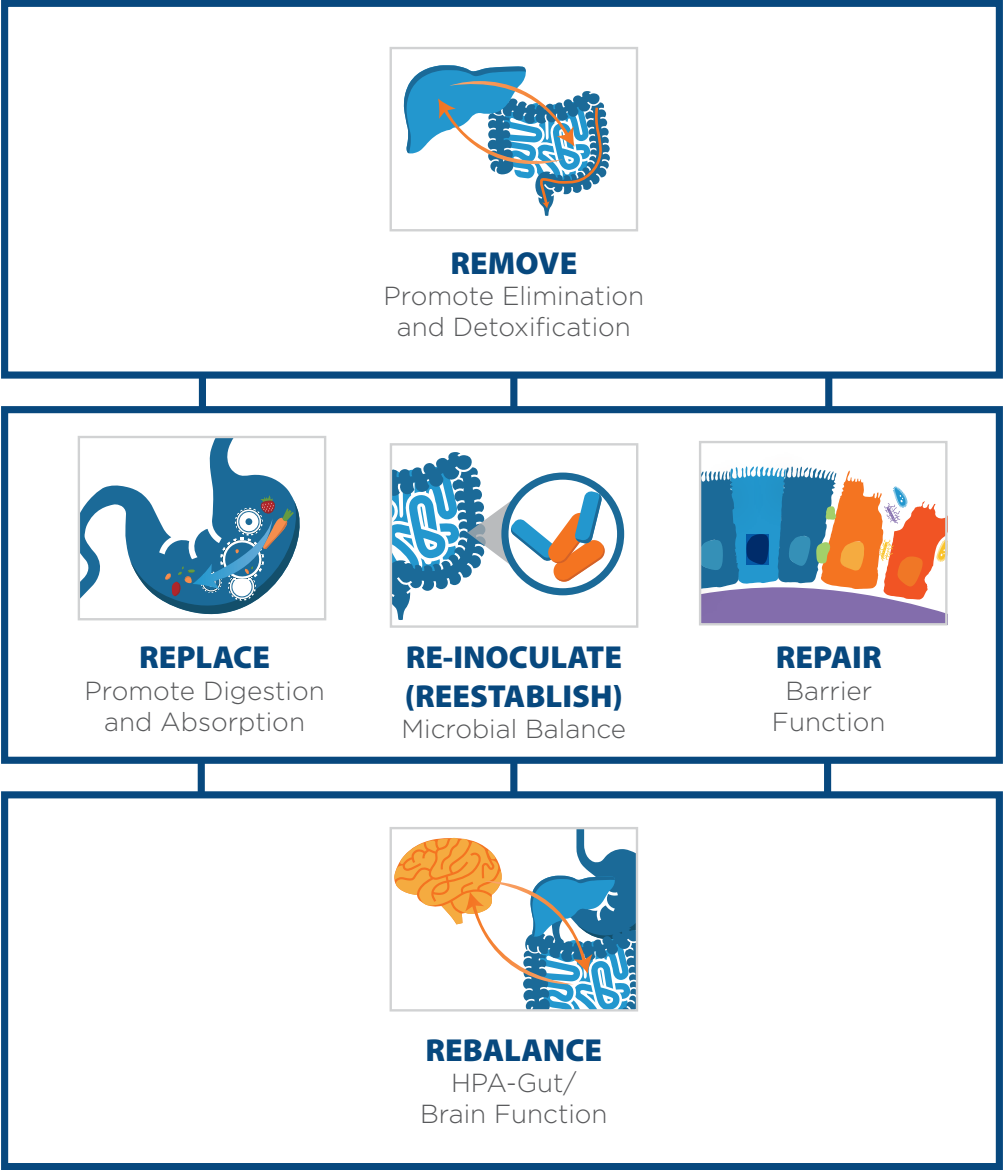




The 5R Approach

The complexities of the gastrointestinal system and the interactions with the neuro/endocrine/immune systems may take some time to understand and are continually being explored in the scientific literature. However, since many of these interactions flow through the basic pillars of GI health, many of the treatment modalities are straightforward. It is astounding how simple imbalances are often overlooked in chronically suffering patients by specialists looking for a disease diagnosis.

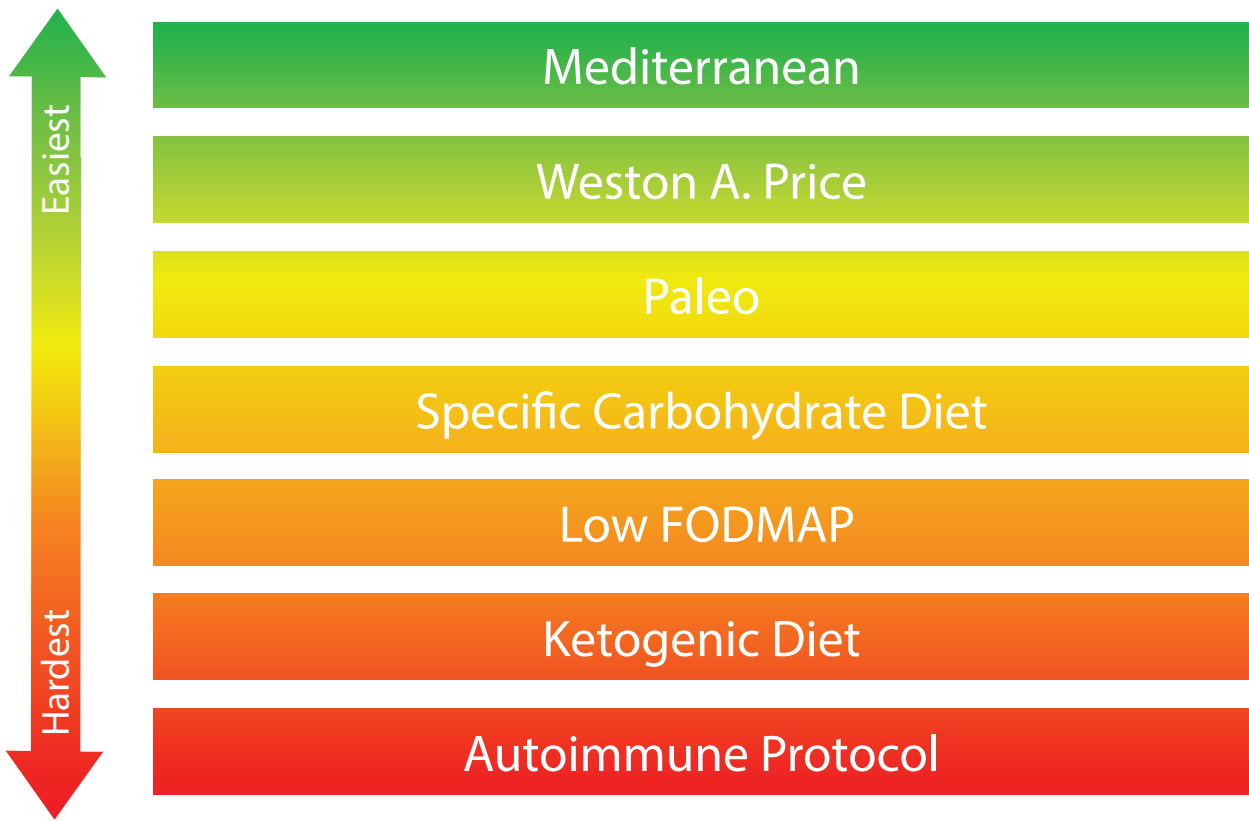
Over the past decade, the 4R approach has been the model of GI health restoration for the functional medicine community (championed by the Institute for Functional Medicine). In recent years, a fifth R, “Rebalance” has been added, representing the importance of addressing the HPA-Gut/Brain connection. Essentially, the 5R approach is a step-wise process to rebuilding the pillars of GI health. The five steps include **Remove, Replace, Re-inoculate (Reestablish), Repair, and Rebalance**.



Diet and Gastrointestinal Health

The entire digestive process is meant to help you digest and absorb nutrients from your food to keep the GI system functioning optimally and allow for the rest of the system to perform at its best. The best way to accomplish this is to provide the body with foods that it can properly digest to be able to absorb these beneficial nutrients. Throughout time, the development of fixed dietary plans has aided individuals in the proper removal of food allergens and triggers that cause GI upset as well as illicit an immune response.

In practice, you will find each patient has his/her own set of lifestyle constraints. When choosing the dietary protocol for a patient, first consider which dietary pattern best fits their needs, and then factor in their ability to adhere. The image below shows a gradient of “easiest to implement” with the Mediterranean diet, to the “most difficult to implement” with the Autoimmune protocol. If the diet best suiting your patient needs within the chart is Autoimmune Protocol, but your patient’s lifestyle will accommodate the successful implementation of Paleo more seamlessly, then you may choose to try Paleo first. Patients often get great results with multiple different variations on the elimination of foods, and finding the one that works with their life best can be more beneficial for the longevity of compliance.



How to Successfully Implement the Pillars of GI Health Program in Your Practice

First Appointment

1. Before you meet in the exam room:
 - A. During the first appointment, the patient completes the **Pillars of GI Health Questionnaire**.
 - B. While the patient is waiting to see you, the patient watches the **Pillars of GI Health Patient Education Video** as an introduction into how lifestyle impacts gastrointestinal health.
2. In the exam room:
 - C. Review the questionnaire and determine which pillar(s) is the priority.
 - D. Using the **Pillars of GI Health Inventory Sheet**, discuss the role of the gastrointestinal tract in the health of the entire body; the four pillars, while focusing on the most problematic pillar(s); and the importance of diet when working to improve gastrointestinal health.
 - E. Utilize one of the four patient **Presentation Pads** to discuss the root of dysfunction in depth.
 - F. Begin the patient on a dietary change to address the gastrointestinal dysfunction.
 - G. Patient receives the **Pillars of GI Health Patient Handbook**. Instruct the patient to read the first 11 pages and the chapter corresponding to their pillar(s) of dysfunction. The patient should implement the applicable lifestyle and nutritional recommendations and bring questions to the next appointment.
3. At checkout:
 - H. The patient goes home with a stool test kit to assess GI function and/or other GI test to confirm GI dysfunction.
 - I. Schedule follow-up visit to increase compliance.

First Follow-Up Visit (3-4 weeks)

4. In the exam room:
 - J. Review steps the patient has taken to improve nutrition and implement lifestyle change along with any questions the patient has on integrating these steps based on information read in the patient handbook.
 - K. Review test results along with patient history to identify the patient's specific dietary needs and supplement protocols.
 - L. Although the nutritional supplementation protocol will likely improve patient symptomology, it is important to set patient expectations by reinforcing that if no lifestyle change is implemented, improvement in gastrointestinal dysfunction will be hindered.
5. At checkout:
 - M. Provide clear recommendations on length of each therapy.
 - N. Schedule follow-up based on patient's need for coaching and accountability.

Subsequent Follow-Up Visits:

- 1. Within four to six months of implementing the initial protocol, the patient should be offered retesting, provided there has been some symptom change, as well as lifestyle change. During that time, schedule a group medical appointment to follow up on 10 to16 patients in a 90-minute block. Prescribe this as a required follow-up. Reinforcing the proper changes is crucial to improvement upon retesting. Consider waiting to retest until these steps have been properly implemented by the patient.

Initial In-Office Visit

STEP 1

Patient completes the Pillars of GI Health Questionnaire

STEP 2

Clinician uses the Pillars of GI Health Inventory Sheet to discuss the basics of gut health with the patient and begins pinpointing areas of concern

STEP 3

A. Clinician and patient identify the area(s) of dysfunction

B. Clinician uses Digestion and Absorption, Elimination and Detoxification, Microbial Balance, or Intestinal Permeability Tear Pads to illustrate factors affecting gastrointestinal and overall health

C. Patient begins initial GI health supplements to address dysfunction

D. Patient watches the Pillars of GI Health Patient Education Video

How the Gastrointestinal Tract Works

Elimination and Detoxification

Microbial Balance

Intestinal Permeability

Revitalize Your Health and Maintain Optimal Wellness

The Pillars of GI Health patient education video can be used as an outreach tool for both new and existing patients. This video can be utilized to introduce key concepts to new patients or as a follow-up to the first visit to review important discussion points.

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STEP
4

A. Patient receives Pillars of GI Health Patient Handbook



It is recommended that every patient reviews the first chapter of the handbook and the chapter correlating with their area(s) of dysfunction.

Chapter 1: Diet and Gastrointestinal Health

Chapter 2: Digestion and Absorption

Chapter 3: Elimination and Detoxification

Chapter 4: Microbial Balance

Chapter 5: Barrier Function

B. Patient goes home with a stool test kit or other GI testing kit to assess GI function

STEP
5

Clinician and patient review pertinent test results and diagnosis. Clinician initiates targeted therapies based on results. For example, if stool analysis reveals dysbiosis and symptoms are suggestive of leaky gut, clinician initiates microbial balancing and gut healing protocol with an elimination or other therapeutic diet.

STEP
6

At this time, enroll patients in the GI Foundations: Heal Your Gut, Heal Your Body Group Visit.

SEE THE FOLLOWING PAGE FOR MORE DETAILS



Follow-Up Visit (2-3 Weeks)

STEP
7

In three to four months, clinician assesses the patient to track progress and adjust treatment plan as necessary. Treatment focus may transition to another foundational area of immune health at this time.



Follow-Up Visit (12+ Weeks)



TRANSFORMING MEDICINE WITH GROUP VISITS

During the initial phase of care, implementing lasting lifestyle changes is essential for improvement of patient health outcomes. Group Visits are a great way to reinforce healthy lifestyle habits and keep patients motivated and accountable prior to one-on-one reassessments. In addition, Group Visits are an effective tool to create better practice efficiencies both financially and clinically. We recommend using the *GI Foundations: Heal Your Gut, Heal Your Body* Group Visit Toolkit. You can find this and other Group Visit Toolkit resources at LifestyleMatrix.com.



Testing Considerations for the Pillars of GI Health

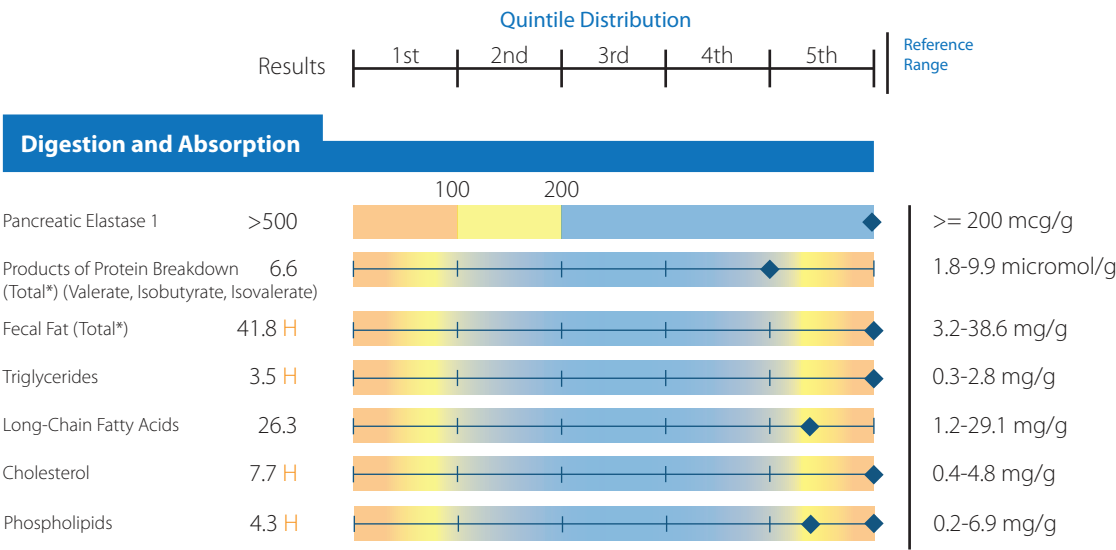


When looking at complicated cases, it can be difficult to discern where the underlying cause of issues in the system is stemming from. Using a GI test can help the physician understand what is occurring in the GI system and can act as a guide to develop an optimized treatment protocol for the patient. Because there are many areas where GI dysfunction can occur, testing can detect the specific areas that require focus. Below is a breakdown of some of the most common tests used in the field today, which include biomarkers and parameters to identify specific areas that need to be addressed.

Quintile reporting is used to analyze the below sample test results. Quintile distribution is based on a reference population that is divided into 5 equal groups, each group representing 20% of the total count of individual results in the reference population, and is ranked lowest to highest.

Digestion and Absorption

Testing for digestion and absorption is a necessity when evaluating GI health. Digestion encompasses the functional activities of: mastication, gastric acid production, pancreatic activity, bile production, and brush border maintenance. Absorption depends on all these actions, as well as a healthy gut mucosal barrier. Many times, markers involved in digestion and absorption provide an idea of whether the patient is producing enough endogenous digestive enzymes to properly break down food and absorb nutrients in food.





Patient Symptoms

A 41-year-old female presents with inability to lose weight since undergoing radioactive iodine thyroid ablation in 2013. On symptom review, she was suffering from severe fatigue, in spite of having titrated her thyroid medication with an endocrinologist, who had switched her to Cytomel 25 mcg once daily, after she did not respond to either Synthroid or Armour Thyroid. She was still having a really hard time getting out of bed in the morning, and no amount of sleep fixed her ongoing fatigue.

She scored a 58 on the Medical Symptom Questionnaire, which indicated moderate toxicity. Her other symptoms included: water retention, inability to concentrate, mental fog, poor memory, severe bloating, mostly constipation, with occasional diarrhea, muscular weakness, and high levels of anxiety. On further questioning, she admitted her energy improves around 6:30 - 7:00 p.m., at which time she gets a “second wind,” but then she doesn’t go to bed until 1:00 - 2:00 a.m. She wakes up around 9:30 - 10:00 a.m. feeling groggy.

She had been diagnosed with SIBO three years prior to her first visit, at which point she had been treated with Rifamixin with only a brief improvement. Her symptoms returned within a few weeks of completing the antibiotic course. The bloating was so severe that at times she felt sick to her stomach. She was at a loss as to what to eat to reduce her symptoms, and had honestly lost faith in the medical establishment.

Her diet was vegetarian, but not vegan. She starts her day with a cup of coffee with a splash of whole milk. Her protein shake breakfast is consumed on-the-go as she commutes to work. She tends to skip lunch, because she is usually bloated and not very hungry; instead, only having a raw green juice. She doesn’t snack between meals. Dinner is usually a quinoa or brown rice bowl with vegetables stir-fried in coconut oil. On occasion, she eats tacos with chickpeas. Before she became vegetarian, she was eating a lot of chicken and turkey. She tends to avoid wheat and gluten, but will cheat with an occasional pasta dish.

In spite of her fatigue, she works out with ferocity. She sees a personal trainer three to four times per week; other days she tries to get in some cardio. Rarely, she will make it to a yoga class. Her motivation is losing weight at all cost. Besides the protein powder, she takes a probiotic, turmeric, and digestive enzymes when she remembers.

She works a high-stress job, which she doesn’t like. Aside from feeling frustrated and concerned about her unresolved health issues, her job is the source of the majority of her anxiety. Just the thought of having to go into the office and deal with her boss gives her a knot in her stomach. Luckily, it affords her the freedom to work from home or remotely with clients. She has been wanting to quit, but this well-paid position affords her and her husband the lifestyle they enjoy.

Her true passion is dancing, but because of her severe fatigue, she has not been going to dance classes. As a result, she feels like she is dying inside. She is no longer the person she once knew herself to be. She is irritable, angry, short-tempered, frustrated, and at her wit’s end.

Appendix C: *H. pylori*

Helicobacter pylori (*H. pylori*) is a gram-negative, spiral-shaped bacterium that takes up residence in various parts of the stomach and duodenum. It is one of the most common infections found in humans worldwide. The organism is uniquely capable of surviving in the acidic environment of the stomach where it causes a chronic, low-level inflammation in both the stomach and duodenum. *H. pylori* is strongly linked to the development of duodenal ulcers, gastric ulcers and gastric carcinoma. The relative risk for the development of these complications depends on the genetic and nutritional differences of the patient.

Most people who have been diagnosed with *H. pylori* become infected in childhood. After being ingested, the bacteria burrow through the stomach mucosa and attach to deeper layers of the stomach, where they can reside for years without causing symptoms. The majority of patients with the infection (80%) are asymptomatic; however, individuals who are not asymptomatic usually develop gastritis and ulcers. Signs and symptoms of these illnesses usually include upper abdominal pain, nausea and vomiting, loss of appetite and hemorrhage (if severe enough). The most reliable method for detecting *H. pylori* infection is through endoscopy with biopsy along with a rapid urea breath test. Noninvasive tests include a stool antigen test, blood antibody test, and the carbon urea breath test (the patient consumes carbon-labeled urea, which the bacterium metabolizes, producing labeled carbon dioxide that can be detected in the breath).

Causes

- Risk increases if there is a family history of gastric carcinoma
- Hypochlorhydria
- Antacid use
- Lifestyle factors (such as smoking, alcohol, drinking coffee, diets high in sugar and trans fats, and stress can all increase risk for the development of an ulcer from *H. pylori*)
- Low antioxidant nutrient status (low levels of vitamin C and E promote growth)
- Suboptimal functioning of the immune system

Conventional Treatment

Once *H. pylori* is detected in patients with a peptic ulcer, the protocol involves eradication of the organism while allowing the ulcer to heal. Standard-of-care therapy usually involves a one week “triple therapy” consisting of a proton pump inhibitor and the antibiotics clarithromycin and amoxicillin. Patients who are allergic to penicillin can replace amoxicillin with metronidazole. An increasing number of infected individuals are found to have antibiotic-resistant bacteria. This results in the “triple therapy” regimen to be ineffective and usually requires the patient to undergo additional rounds of antibiotic therapy (or add a bismuth colloid to triple therapy). Unfortunately, frequent (or prolonged) antibiotic therapy has the side effect of causing dysbiosis in the gut by eliminating beneficial bacteria. Anytime the balance of organisms within the gut is disrupted, harmful organisms have an advantage, which can lead to systemic consequences (such as dysregulation of the immune system). This can usually be prevented by use of probiotics during antibiotic treatment or the use of more natural therapies in place of (or with) antibiotics.

Appendix D: Hypochlorhydria/Achlorhydria

An inadequate level of stomach acid (regardless of the root cause) is likely to result in a number of nutritional and digestive issues. A reduction in gastric acid secretion prevents adequate denaturing of folded proteins, limiting access to certain proteases, thereby resulting in poor protein digestion and increased food allergenicity. Reduced absorption of key micronutrients including calcium, iron, folic acid, vitamins B6 and B12 can be seen in a low-acid environment. Gastric acid helps to eliminate harmful ingested microorganisms and hinders bacterial overgrowth in the stomach and small bowel, protecting against the development of SIBO.

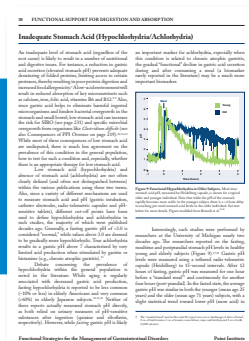
Low stomach acid (hypochlorhydria) and absence of stomach acid (achlorhydria) can be indisputably correlated with the overuse of proton pump inhibitors (PPIs) in society. The widespread use of PPIs is a major concern to many clinicians, seeing as PPI's dysregulate the signaling mechanisms behind HCl production. Generally, a fasting gastric pH of <3.0 is considered "normal" while any levels which are higher, are considered hypochlorhydric. Gastric pH above 7 can be classified as achlorhydria, and is characterized by very limited acid production when stimulated by gastrin or histamine (e.g., chronic atrophic gastritis).

The most common treatments for acid-reflux related symptoms are PPIs and H2 blockers, which reduce the production of gastric acid. The use of these medications increases the frequency of mealtime hypochlorhydria and is commonly seen in older adults. The debate about the utility of supplementing acid is related to the debate about the relationship between endogenous stomach acid production and gastrointestinal outcomes. It is common within the functional and integrative medicine community to recommend supplementing agents that directly or indirectly increase stomach acid during a meal.

- Bitters: improve gastric and salivary secretions
- Apple cider vinegar: 1 TBS in a glass of water before meals
- Betaine HCl: Readily releases H⁺ ions to decrease pH

The most common recommendations for the use of betaine HCl supplements is combined with the empirical test for low stomach acid where betaine HCl capsules or tablets are increasingly given during meals until such time as an uncomfortable sensation is noticed by the patient.

For an in-depth review of hypochlorhydria/achlorhydria, reference pages 30-33 in *Functional Strategies for the Management of Gastrointestinal Disorders*, available at [LifestyleMatrix.com](https://lifestylematrix.com).



Appendix K: Pillars of GI Health Sample Revenue Generation Model

The following tables provide a general model for revenue generation based on each patient that is run through the Pillars of GI Health Program for six months. This includes a first and second office visit, baseline and follow up stool testing, a group visit, as well as a six-month supply of supplements for chronic GI dysfunction. The revenue generation models below include an insurance-based model and a cash practice model. The indications for administering a test kit include digestive complaints, multiple food sensitivities, fatigue, or an autoimmune disease diagnosis.

Insurance-Based Revenue Generation Model		
First office visit	\$150	\$220 bill sent to insurance for new patient E&M code #99203 or established patient code #99214 billed on time, with roughly 70% gross collection
Approximate initial supplement sales profit	\$150	Products may include but not limited to: 7-14 day detoxification protocol, gut healing protocol (probiotics, immunoglobulins, glutamine), digestive enzyme support
Baseline testing	variable	Baseline testing assumes a CBC, blood chemistry, and A1C are already performed. Therefore, "baseline" refers to hsCRP, Vitamin D, and thyroid function including TSH, free T3, occult blood, and free T4.
Second office visit	\$150	\$220 bill sent to insurance for E&M code #99214 billed on time with roughly 70% gross collection
Group Visit	\$60	Bill a level 3, 99213 CPT code. Billing is based on complexity, not time in a Group Visit. See figure for additional information regarding Group Visits
Supplement sales profit for 5-month refills	\$481	Products may include but not limited to: gut healing protocol (probiotics, immunoglobulins, glutamine), digestive enzyme support
Testing	variable	Colonoscopy, Endoscopy, SIBO Breath Test, Comprehensive Stool Analysis
Total profit from 6-month Pillars of GI Health Program per patient	\$991 (w/o testing profits)	

Based on the insurance model, if, each week, the practice has one patient starting and adhering to a six-month Pillars of GI Health Program, the total revenue generated will be in \$51,532 in 12 months.

Cash-Based Revenue Generation Model		
First office visit	\$220	Based on 30-minute office visit
Group Visit	\$75	
Approximate initial supplement sales profit	\$150	Products may include but not limited to: 7-14 day detoxification protocol, gut healing protocol (probiotics, immunoglobulins, glutamine), digestive enzyme support
Baseline testing	variable	Baseline testing assumes a CBC, blood chemistry, and A1C are already performed. Therefore, “baseline” refers to hsCRP, Vitamin D, occult blood, and thyroid function including TSH, free T3, and free T4.
Supplement sales profit for 5-month refills	\$775	Products may include but not limited to: gut healing protocol (probiotics, immunoglobulins, glutamine), digestive enzyme support
Second office visit	\$220	Based on 30-minute office visit
Testing	variable	See decision tree and testing chart
Total profit from a 6-month Pillars of GI Health Program per patient	\$1,146 (w/o testing profits)	

Based on the cash model, if, each week, the practice has one patient starting and adhering to a six-month Pillars of GI Health Program, the total revenue generated will be in \$59,592 in 12 months.

GI Foundations: Heal Your Gut, Heal Your Body Group Visit Toolkit

Following the second office visit, it is recommended to have the patient set up their next appointment approximately one month later in a Group Visit. Group visits help to maximize time with patients who need lifestyle education. GI Foundations: Heal Your Gut, Heal Your Body Group Visit Toolkit provides the necessary components to implement and conduct a successful Group Visit Model in your practice. This relieves practitioners from the task of creating group classes on their own. The tools include the SOAP note, patient handouts, promotional flyers, and PowerPoint slides at a quality level that patients enjoy and understand.



For insurance-based practices: Each patient will have a face-to-face E/M with you, the provider, while the presentation segment of the Group Visit is being conducted. Each Group Visit lasts 90 minutes from the time patients check in to conclusion and can be conducted at the end of a regularly scheduled business day (4:30-6 p.m.).

To learn more about how Group Visits can help your practice grow and improve patient care, please visit LifestyleMatrix.com.



LifestyleMatrix.com

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