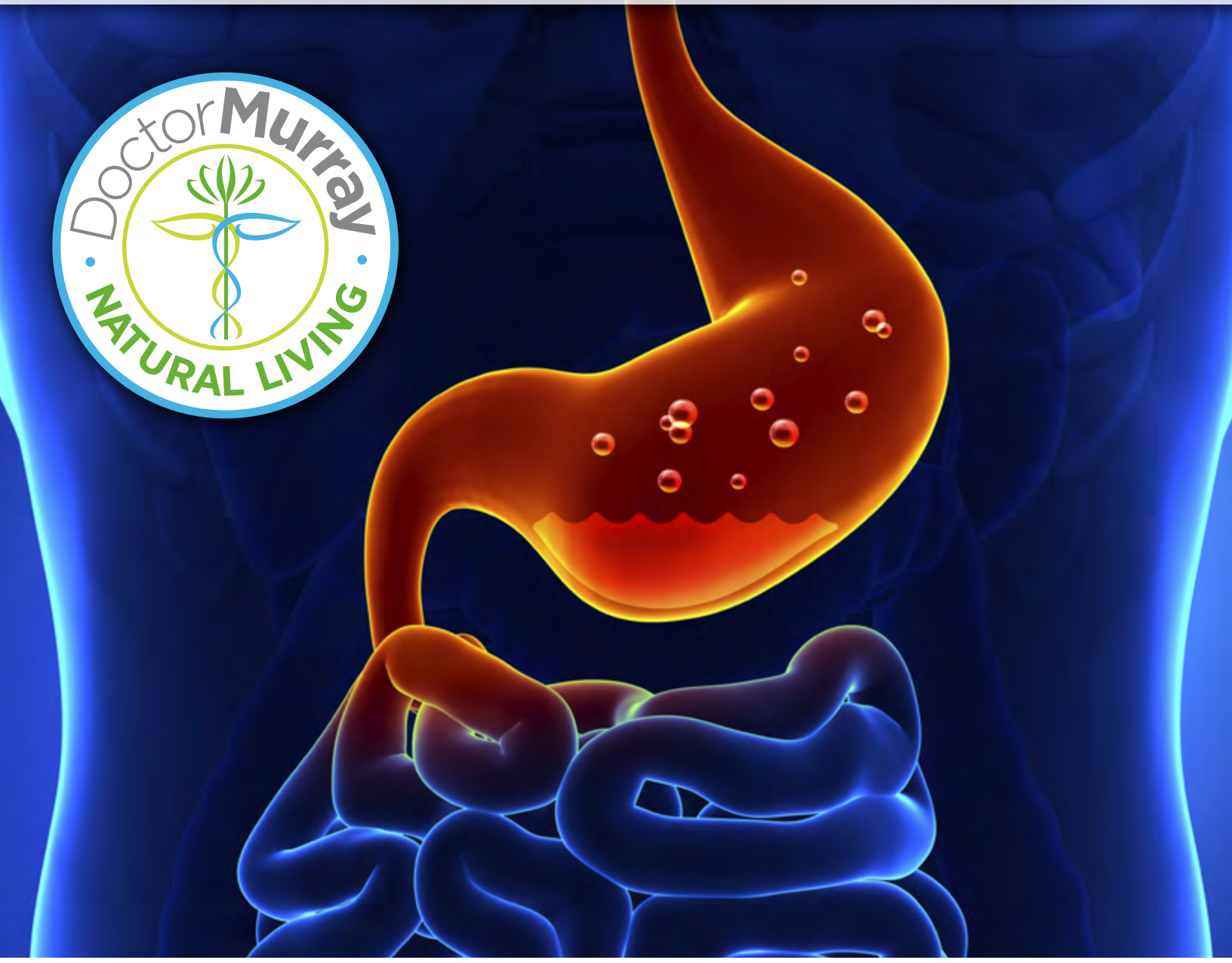
WHAT THE DRUG COMPANIES WON'T TELL YOU
AND YOUR DOCTOR DOESN'T KNOW ABOUT

GASTROESOPHAGEAL REFLUX DISEASE



Dr. Michael T. Murray, N.D.

This information must not be used in place of a physician or qualified health care practitioner. Readers are strongly urged to develop a good relationship with a physician knowledgeable in the art and science of natural and preventive medicine, such as naturopathic physicians. In all cases involving a physical or medical complaint, ailment or therapy, please consult a physician. Proper medical care and advice can significantly improve the quality and duration of your life.

Although this guide discusses numerous natural approaches to gastroesophageal reflux disease (GERD)various health conditions, it is not intended as a substitute for appropriate medical care. Please keep the following in mind as you read:

- Do not self-diagnose. If you have concerns about any subject discussed in this book, please consult a physician, preferably a naturopathic doctor (N.D.), nutritionally oriented medical doctor (M.D.) or doctor of osteopathy (D.O.), chiropractor (D.C.), or other natural health care specialist.
- Make your physician aware of all the nutritional supplements or herbal products you are currently taking to avoid any negative interactions with any drugs you are taking.
- If you are currently taking a prescription medication, you absolutely must work with your doctor before discontinuing any drug or altering any drug regimen.
- Most health conditions require a multi-factorial solution: medical, nutritional, and lifestyle changes. Do not rely solely on a single area of focus. You can't just take pills and not change your diet, or do the diet and the pills but ignore the lifestyle issues. Any truly effective approach to health must be truly integrated.

With the above in mind, it can be stated that the information in this book is to be applied, not simply read. Commit yourself to following the guidelines of natural healthcare as detailed in this book and I believe that you will be rewarded immensely.

Michael T. Murray, N.D.

THE IRRATIONAL MEDICAL APPROACH TO GERD AND "INDIGESTION"

One of my favorite memories while going through my training as a naturopathic physician was how many times my professors made simple statements that triggered a flood of provocative thoughts within me. Among my favorites was the time when Dr. Bill Mitchell pointed out that "A headache is not caused by a deficiency of aspirin." Simple and provocative, right?

Now, symptom relief is something that we should always try to achieve, but it must be done in a manner that does no harm. Ideally, it should address the underlying root cause of the symptom and not simply act as a biochemical band-aid. Unfortunately, many of the current drug treatments in vogue are completely irrational and counter-productive.

Certainly there are some safe and effective drug treatments, but I do believe there is a fundamental flaw in the use of most drugs. That flaw is that conventional drugs rarely produce a curative effect. Instead they simply block symptoms to make us feel better. Sometimes actually making the situation much worse.

This focus on symptom relief often comes at a very high price. There are countless examples of drugs that take care of the primary symptom, but produce significant consequences because they do not address the underlying cause. Some drugs create a dependency; others interfere with normal physiology in a way that actually increases the very thing for which the treatment is prescribed; or produce side effects worse than the symptoms themselves.

GERD Diagnostic Summary

- **Burning sensation in the esophagus, regurgitation, teeth erosion**
- **Symptoms chronic and periodic**
- **Epigastric tenderness and guarding**
- **Gastric analysis showing acid in all cases, with hypersecretion in about one half the patients with duodenal ulcers**
- **Ulcer crater or deformity usually occurring at the duodenal bulb (duodenal ulcer) or pylorus (gastric ulcer) on radiography or fiberoptic examination**
- **Positive test for occult blood in stool**

The use of acid-blocking drugs in the treatment of gastroesophageal reflux disease (GERD) and indigestion is a prime example of how drugs designed to treat one symptom can create a long list of possible adverse effects and outcomes. Fortunately, there is a better approach. The use of diet therapy and natural medicines that can address the underlying issues and promote true healing.

What is GERD and indigestion?

The term **indigestion** is often used by patients to describe heartburn and/or upper abdominal pain as well as a feeling of gaseousness, difficulty swallowing, feelings of pressure or heaviness after eating, sensations of bloating after eating, stomach or abdominal pains and cramps, or fullness in the abdomen. The most common medical term used to describe indigestion is **gastroesophageal reflux disorder (GERD)**, but other terms such as **functional dyspepsia (FD)** and **non-ulcer dyspepsia (NUD)** are also used.

GERD is a common condition with up to 25% of the general population experiencing symptoms at least one time per month.[1] The incidence of reflux is increasing because of growing numbers of obesity, increased longevity, and the increased use of medications that impact esophageal function.[2] In fact, the prevalence of GERD is 50% higher in the U.S. in studies carried out after 1995, compared to those carried out before 1995.[3]

The degree of irritation and damage to the lining of the esophagus usually correlates to the severity of symptoms. However, this is not always the case. A multiple-site, double-blind, randomized clinical trial failed to demonstrate a correlation between the severity of self-reported heartburn symptoms and the presence of endoscopically graded esophagitis.[4] Although there was no correlation between severity and underlying esophagitis, there was a strong correlation between the frequency of heartburn episodes and increasing severity of esophagitis.

The severity of the damage to the esophagus in GERD varies from no erosive damage to significant damage. **Barrett's esophagus**, **erosive esophagitis**, and **esophageal cancer** are severe complications associated with erosive forms of GERD. Fortunately, endoscopy reveals that most symptomatic patients have **"non-erosive reflux disease"** and **"functional heartburn."** These terms are often used to separate out the common forms of GERD from the more serious versions.[5] The inability of the esophageal mucosa to withstand injury is a determining factor in the development of the more severe forms of GERD.[6] When factors such as reflux, alcohol, heat, various drugs, etc., overwhelm the ability of the cells that line the esophagus to defend themselves, that is ultimately what causes the damage.

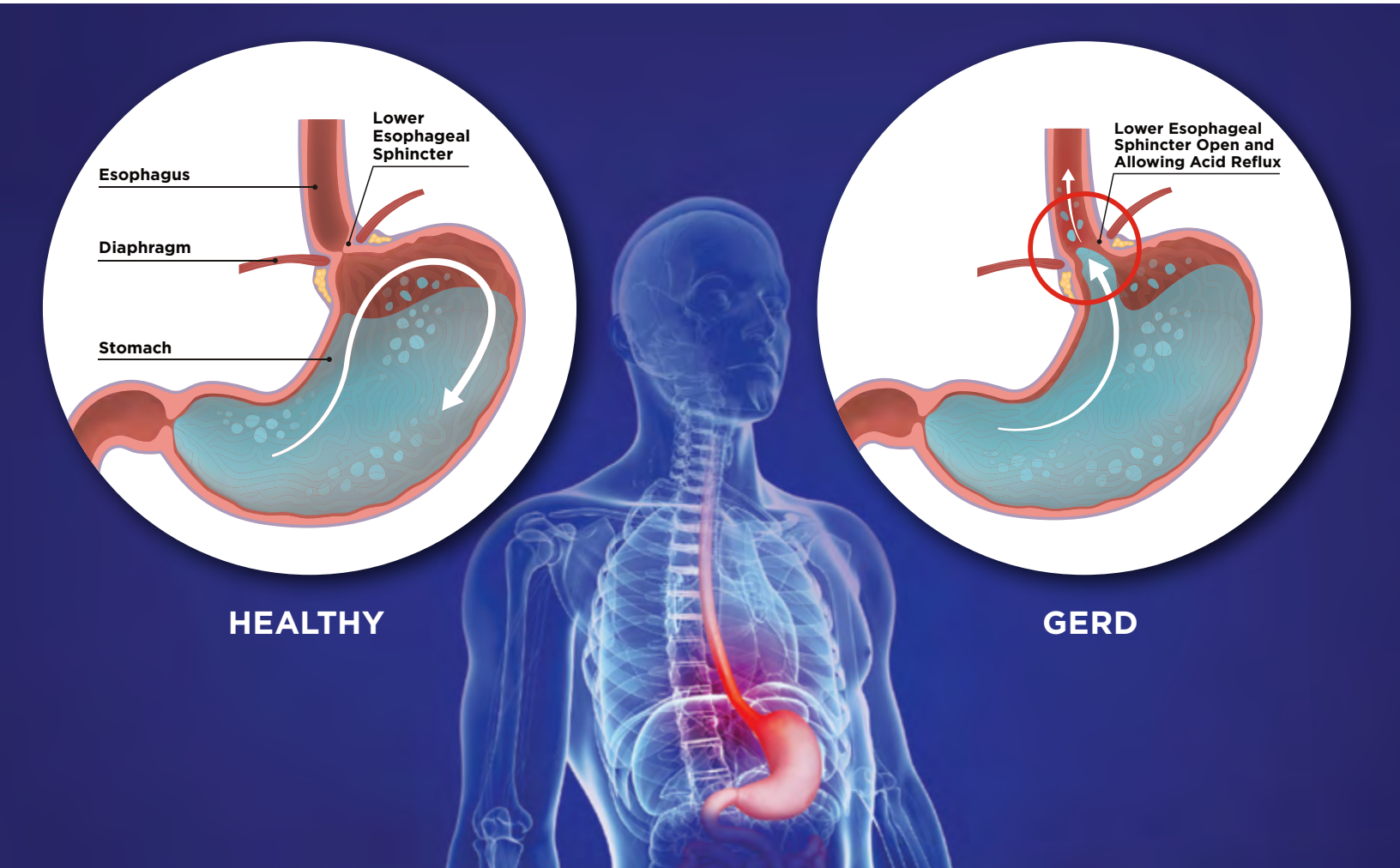
What exactly causes GERD?

GERD is most often the result of altered function of a circular valve that separates the esophagus from the stomach known as the **lower esophageal sphincter (LES)**.[7] Sometimes the dysfunction is due to mechanical factors, such as a hiatal hernia or during pregnancy or with obesity. It can also be the result of overeating or poor digestive function. With relaxation of the LES, there is a reflux of stomach contents up into the esophagus. The reflux is composed of acid, bile, pepsin, and other enzymes that leads to damage or irritation of the esophagus.

The LES is a valve that opens and shuts that acts as a physical barrier preventing gastric contents from refluxing into the esophagus. This sphincter typically opens in response to swallowing and the rhythmic contraction (peristalsis) of the esophagus and is designed to stay shut while the stomach is churning to digest a meal.Only a small minority of patients with GERD have a constantly weak, malfunctioning LES, which permits reflux every time after a meal or when there is increased pressure in the stomach.[8] In patients with GERD, transient LES relaxations account for 48% to 73% of reflux episodes, and thus account for most gastroesophageal reflux episodes.

Other causes of GERD include: cigarette smoking, chocolate, fried foods, carbonated beverages, alcohol, caffeine, and many prescription and over-the-counter drugs. The common thread among these factors is that they decrease lower LES tone.

Symptoms may be particularly bad when a person is lying down. Studies in healthy volunteers have identified reflux episodes during sleep and the after-meal period resulting from an increased number of LES relaxations.[9] During the night, LES relaxation and esophageal reflux occurred only during transient arousals from sleep or when the subjects were fully awake, but not during stable sleep. Reduced salivation during or immediately before sleep accounts for markedly prolonged



clearance of acid from the esophagus and increased esophageal acid exposure, and thus may be a significant causative factor in GERD.[10]

The process of esophageal acid clearance involves peristalsis as well as the swallowing of bicarbonate and is an important protective mechanism against the development of GERD. Impaired esophageal clearance can be caused by an increase in volume of the refluxate and occasionally from an underlying condition such as scleroderma. In experimentally induced or spontaneous reflux, patients with GERD have been found to present acid clearance times that are two to three times longer than those of subjects without GERD.[11]

Hiatal hernia has been shown to be present in ≥ 90% of patients with reflux esophagitis.[12] A study assessing the role of hiatal hernia in patients with Barrett's esophagus found a 2-cm or longer hernia in 96% of the patients and 72% of the patients with short segment Barrett's esophagus.[13] It is unclear if hiatal hernias are an initiating factor in GERD. However, hernias clearly play a role in sustaining GERD, accounting for the chronicity of the disease. A hiatal hernia may act as a reservoir for acid-containing material that is subsequently refluxed into the esophagus when the patient swallows, leading to the delayed acid clearance observed in GER patients with hiatal hernia.[14]

One of the surprising causes of GERD is low output of stomach acid or hypochlorhydria and/or lack of digestive enzymes. When food is inadequately broken down and stays in the stomach for longer periods of time it leads to an increase in gastric pressure and reflux of gastric contents into the esophagus. In many cases, supplementation with hydrochloric acid and/or digestive enzymes is very effective in relieving symptoms of GERD. The role of HCL and digestive enzymes in the treatment of GERD is discussed below.

Drugs that induce GERD

The use of certain medications can lead to the development of GERD and can also worsen existing reflux symptoms. For example, the combination of calcium channel blockers and warfarin (Coumadin) is known to be an independent risk factor for GERD.[15] Mechanisms by which drugs cause or aggravate reflux include a reduction in LES pressure, delayed gastric emptying, and inducing/facilitating esophageal inflammation and damage (*Table 1*).[16]

Table 1. Drugs and GERD

Reducing LES Pressure	Inducing/Facilitating Esophageal Inflammation	Delayed Gastric Emptying
• Beta-adrenergic agonists	• Bisphosphonates	• Calcium channel blockers
• Alpha-adrenergic antagonists	• Aspirin and NSAIDs	
• Anticholinergics	• Iron salts	
• CCB/Nitrates	• Ascorbic acid	
• Benzodiazepines	• Potassium chloride	
• Estrogen	• Quinidine	
• Progesterone	• Tetracycline	
• Theophylline	• Doxycycline	
• SSRIs	• Clindamycin	
• Tricyclic antidepressants	• Chemotherapeutic agents	

Adapted from: Mungan, Z., & Pinarbasi Simsek, B. (2017). Which drugs are risk factors for the development of gastroesophageal reflux disease? *The Turkish Journal of Gastroenterology*, 28(Suppl 1), S38-S43. PubMed PMID: 29199166.

The folly of acid-blocking drugs

Drugs used to relieve symptoms of GERD by blocking acid production are among the most popular in North America and yet several review articles have concluded that, in the treatment of GERD, "the efficacy of current drugs on the market is limited at best." The at best signifies the fact that often these drugs cause more problems than they help.

While there are a variety of drugs used in the treatment of GERD, as well as indigestion and the medical labels of FD, NUD, and GERD as well as the irritable bowel syndrome; but since my goal here is not to show you how ludicrous all of these drugs are in their attempt to treat these functional disorders, I want to focus on the most popular—**acid-blocking drugs**. These drugs work by blocking one of the most important digestive processes—the secretion of hydrochloric acid by the stomach.

Acid-blocker drugs are divided into two general drug groups. One group is the older histamine-receptor antagonist drugs like *Zantac, Tagamet* and *Pepcid AC*. The other is the newer and more potent group of drugs is called **proton-pump inhibitors (PPIs)** that include *Nexium, Prilosec, Protonix, Prevacid*, and *Aciphex*.

These drugs are a huge business with estimates of total prescription and over-the-counter (OTC) sales of these drugs exceeding $13 billion in annual sales. The drug companies love them because they are, for them, perfect drugs in that they are expensive, don't produce a true cure, but do tend to suppress symptoms. In short, when people start taking these drugs they tend to become dependent upon them. For good reason, these

Background of the *New Purple Pill*

One of the most expensive marketing campaigns in the history of the drug industry was the nearly $500 million spent by AstraZeneca to switch people from its profitable drug ***Prilosec*** to the "new purple pill," ***Nexium***. In 2000, Prilosec was the world's largest selling prescription drug, with annual sales of more than $6 billion and accounted for 39% of AstraZeneca's income. The problem for AstraZeneca was that the patent protection for Prilosec was set to expire in 2001. The loss of patent protection would mean the introduction of generic versions that would be priced significantly less.

Fortunately for Astra-Zeneca, just before the patent was set to expire, they received FDA approval for Nexium. In order to protect their profits, AstraZeneca began their half a billion dollar campaign with ads appearing everywhere proclaiming "Today's purple pill is Nexium, from the makers of Prilosec" were everywhere. They also added an additional 1,300 sales reps to promote the product directly to physicians. As a result, the introduction and promotion of Nexium allowed AstraZeneca to prevent the revenue loss they would have experienced with generic competition. In 2003, although revenues from Prilosec slid to under $1 billion due to the switch by many patients and doctors to less-expensive generic alternatives, Nexium sales were $3.9 billion. Even when Prilosec did go OTC in 2004, AstraZeneca managed to keep up sales of the prescription version that costs six times as much by "accidental" shortages of the identical OTC version.

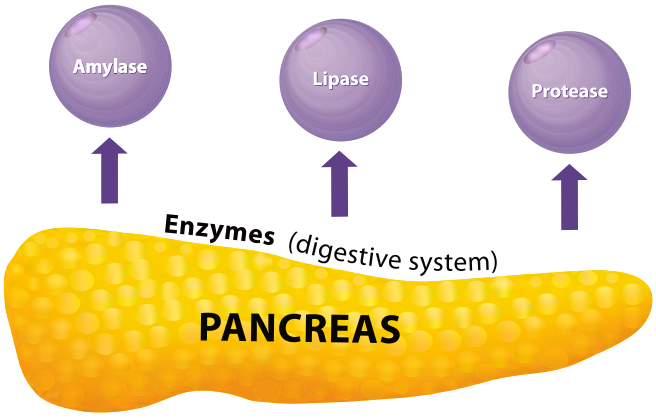
Now, is Nexium better than Prilosec? Here is where the story gets even more interesting. Chemically, Nexium contains the left-handed version, while Prilosec contains both the left- and right-handed version of the same molecule (omeprazole). There is absolutely no real evidence that Nexium is any better, though AstraZeneca seemed to pull the wool over many doctor's eyes with some clever design of clinical trials. Rather than test Nexium vs. Prilosec at equivalent dosages, two studies showed absolutely no advantage to Nexium and the two others showed only a marginal advantage at best. Another study in patients with GERD showed that 20 mg of Prilosec was equal to 20 mg of Nexium. So, there really isn't any difference other than the cost. Substituting Prilosec OTC for Nexium, Prevacid and other prescription acid blockers would cut spending on those medicines by about 50%, or almost $7 billion nationally—enough money to pay for health coverage for more than a million uninsured Americans—according to a study by the University of Arkansas.

Interestingly, according to the United Kingdom's National Institute for Clinical Excellence:

> *"The majority of patients should not be prescribed PPIs on a long-term basis, the dose should be reduced where appropriate, and the least expensive PPI that is most appropriate for the patient should be used."*

drugs interfere with the body's natural digestive processes to produce significant disturbances in the gastrointestinal tract as well as other side effects including promoting an early death (discussed below). And, while these drugs are typically quite expensive, I like what my colleague Jacob Schor, N.D. says about these drugs: "New research on their side effects says that the money spent on acid blocking drugs may be the least of the costs of using them."

Acid-blocking drugs will typically raise the gastric pH above the normal range of 3.5, effectively inhibiting the action of pepsin—an enzyme involved in protein digestion that can be irritating to the stomach. Although raising the pH can reduce symptoms, it also substantially blocks a normal body process. The manufacture and secretion of stomach acid is very important not only to the digestive process, but also because it is an important protective mechanism against infection. Stomach secretions can neutralize bacteria, viruses and molds before they can cause gastrointestinal infection. As far as the digestive process, stomach acid is not only important in the initiation of protein digestion it ionizes minerals and other nutrients for enhanced absorption; and without sufficient secretion of HCl in the stomach the pancreas does not get the signal to secrete its digestive enzymes.



PPIs are associated with numerous side effects. Here are just a small number of examples:

Pneumonia

People using acid blockers were 4.5 times as likely to develop pneumonia as were people who never used the drugs. Apparently, without acid in the stomach, bacteria from the intestine can migrate upstream to reach the throat and then lungs to cause infection.

Increased fractures

People taking high doses of acid-blocking drugs for longer than a year had a 260% increase in hip fracture rates compared to people not taking an acid blocker. Evidence suggests that these drugs may disrupt bone remodeling making bones weaker and more prone to fracture.

Vitamin B12 insufficiency

Acid blocking drugs not only reduce the secretion of stomach acid, but also intrinsic factor (a compound that binds to and assists the absorption of vitamin B12). Vitamin B12 deficiency is among the most common nutritional inadequacy in older people. Studies indicate that 10%-43% of the elderly are deficient in vitamin B12 making them at risk for a number of health conditions including dementia. Many elderly put away in nursing homes for Alzheimer's disease, may simply be suffering from vitamin B12 deficiency.

Disruption of the intestinal microbiome

PPIs dramatically effect the intestinal environment and change the collection of microorganisms in the stomach and intestines leading to potentially serious infections as well as small intestinal bacterial overgrowth (SIBO, a condition linked to gas, bloating, and intestinal inflammation).

Alzheimer's Disease

PPIs get into the brain and cause an increase in the beta-amyloid deposits characteristic of Alzheimer's disease. Regular use of PPIs is associated with 44% increased risk due for dementia.[17]

Heart attacks or stroke

A review of 37 studies showed that use of PPIs was associated with a 68% increased risk of mortality (dying) and a 54% increased risk of having a heart attack or stroke.[18] In one study, Stanford researchers examined over 16 million clinical documents on 2.9 million individuals and found regular use of PPIs was linked to a two-fold increase in dying from heart disease.[19] It turns out that PPIs inhibit the enzyme required by the cells that line the vascular system that metabolizes a substance produced during metabolism known as asymmetric dimethylarginine (ADMA). If ADMA increases in the blood vessel lining it makes them more rigid as well as promotes inflammation and clot formation. PPIs increase ADMA levels by about 20–30%.

Leads to early death

In a nearly six-year study of U.S. veterans it was shown that PPI use carried with it about a 20% increased risk in overall mortality.[20]

Guidelines for Discontinuing a PPI

It is well established that many people taking PPIs long-term that should not be. They were initially prescribed the drugs for a short-term indication or took them on their own because of occasional heartburn, but many times people have gotten hooked on them for many years or over a decade. One of the problems with PPIs is that when people try to get off them cold turkey they experience a rebound of increased acid secretion and that can cause severe pain or discomfort.

Rather than quitting cold turkey, there are accepted guidelines for getting off PPIs that involve either dose reduction; change to using only when symptoms occur; or switching to drugs like Zantac or Pepcid. These guidelines are only slightly modified when choosing to use a natural approach.

If symptoms are completely gone or use was only occasional: Simply using an alginate-based product as described in the article on an as needed basis may be all that is required.

If GERD symptoms are still present or PPI use was continuous for more than 4 weeks: The dosage of PPI should be reduced by half for two weeks and then take reduced dosage every 2 days. At the same time, utilize an alginate-based product after each meal and 30 minutes before going to bed.

If the PPI is being prescribed for long-term use for Barrett's esophagitis: I recommend using the alginate-based product in place of the PPI indefinitely.

If the PPI is being prescribed for peptic ulcer disease: Consider natural approaches such as deglycyrrhizinated licorice (DGL), zinc carnosine, or mastic gum products along with the alginate-based product.

NATURAL SELF-CARE FOR GERD

Most individuals who suffer heartburn and acid reflux self-treat their symptoms.[21] That is the reality. Unfortunately, this self-care is usually in the form variety of over-the-counter drugs such as antacid formulations, histamine H2-receptor antagonists (H_2RAs such as Pepcid and Tagamet), and proton-pump-inhibitors like Nexium and Prilosec. Instead of relying on this dead end of a drug approach, what I want to outline here is a more rational approach. Here are the some categories of GERD with recommendations that are more fully discussed below:

- **Occasional heartburn** – The best natural approach is alginate raft therapy on an as needed basis.
- **Mechanical factors** – If you are obese, pregnant, or have a hiatal hernia the best natural approach is alginate raft therapy. If you are overweight, weight loss is often curative of GERD.[22]
- **Irritation due to ingestion of certain foods** – Sometimes symptoms of GERD are due to the ingestion of coffee, carbonated beverages, alcohol, chocolate, fatty foods, citrus fruits, spicy foods, etc. Elimination and avoidance of these foods is recommended, but a person can also use alginate raft therapy on an as needed basis.
- **Lack of hydrochloric acid or digestive enzymes** – Insufficient output of stomach acid and digestive enzymes can result in GERD symptoms. A simple challenge protocol for HCL supplementation is given below. Sometimes a person with lack of HCL will still experience GERD symptoms with supplementation. In those situations alginate raft therapy can also be used.
- **Nighttime heartburn** – Raising the head of the bed six inches is often helpful. Alginate raft therapy is effective and so is melatonin.

Alginate Raft Therapy

Alginate, also called ***alginic acid***, is a dietary fiber found in the cell walls of brown algae. Alginate has a unique ability to hold upwards of 200-300 times its own weight in water, making it a naturally gelling substance. When taken with natural buffering agents like calcium carbonate, the alginate it produces a very effective raft to block reflux of gastric contents into the esophagus.

When alginate reaches the acidic environment of the stomach, it forms a pliable gel. At the same time, the calcium carbonate mixes with gastric acid to produce carbon dioxide bubbles that gets trapped in the gel causing it to float to the top of the stomach contents. It literally is like a foam raft sitting on top of the stomach contents. The raft-forming process takes less than a minute the raft can survive in the stomach for as long as four hours. As it makes its way through the intestinal tract it partially digested and behaves as other dietary fibers until it is finally passed out of the body. Alginate is a very safe and effective treatment of GERD.

For decades, formulations containing alginate have been marketed world-wide for the symptomatic treatment of heartburn and esophagitis. Alginate should be combined with calcium carbonate as both the calcium and carbonate serve essential functions in the beneficial effect. When the alginate formulation reaches the acidic environment of the stomach, the alginate forms a pliable gel. At the same time, the calcium carbonate mixes with gastric acid to produce carbon dioxide bubbles that get trapped in the gel causing it to float to the top of the stomach contents. The free calcium ions released bind with alginic acid providing strength to raft formation. The resultant alginate complex literally is like a foam raft sitting on top of the stomach contents. Several studies have demonstrated that the alginate raft can preferentially move into the esophagus in place, or ahead, of acidic gastric contents during episodes of GERD.[23] The raft literally acts as a physical barrier to block reflux episodes. The raft-forming process takes less than a minute the raft can survive in the stomach for as long as four hours.[24] As the alginate complex makes its way through the intestinal tract the alginate is partially digested and behaves as other dietary fibers until it is finally passed out of the body.

Alginate formulations are a well-proven treatment for GERD based on 14 human clinical studies and detailed meta-analyses. In the most recent meta-analysis results showed that alginate-based products were clearly more effective than a placebo or antacids. A very high degree of statistical significance was shown by pooling the data from these studies (P = .001). Subjects taking alginate were 4.42 times more likely to have complete resolution of their symptoms compared to those taking placebo or antacids. The comparison to stronger acid-blocking medications like PPIs and H2-receptor antagonists was less clear and did not reach statistical significance largely because most studies were using alginate in conjunction with a PPI. **Table 2** on the next page summarizes the 14 studies used in the meta-analysis.[25]

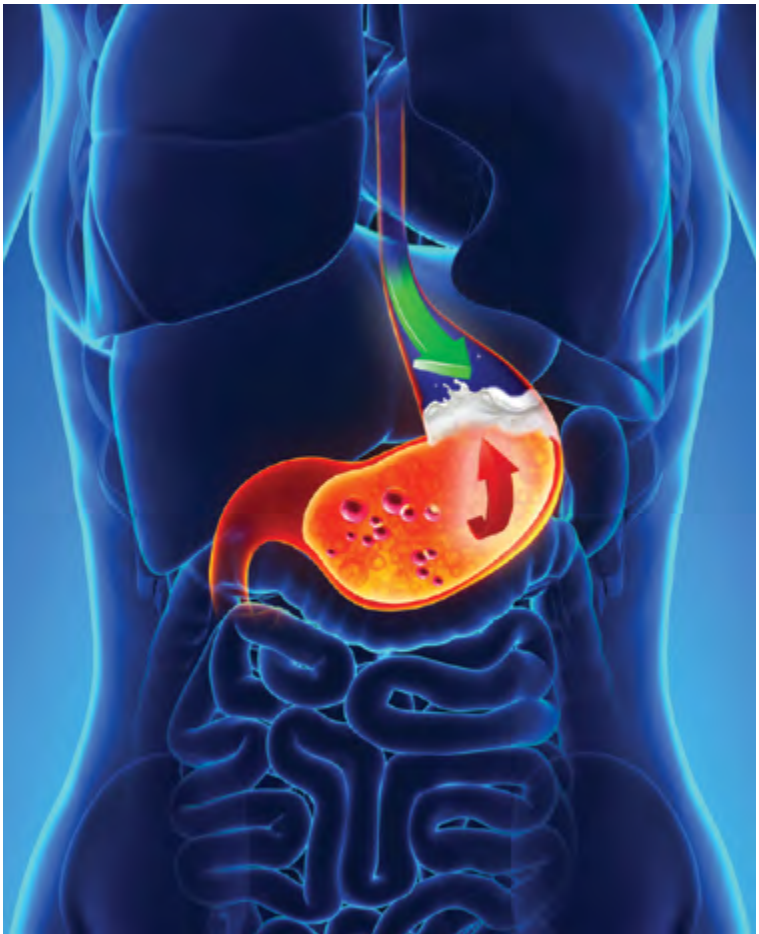


Table 2. Characteristics of studies included in a systematic review

Study	Study design	GERD diagnosis and/or severity	Comparators (N)	Duration (formulation)	Outcome	Results
Placebo or antacid as comparators						
Beeley and Warner	Randomized, double-blind, three-arm cross-over Single Center	Typical symptoms and presence of hiatal hernia on barium	Alginate (28) vs. alginate + antacid (28) vs. placebo (28)	2 weeks (tablet)	Improvement in regurgitation	Alginate (19/28) vs. alginate + antacid (25/28) vs. placebo (12/28)
Stanciu and Bennett[4]	Randomized, single-blind, three-arm parallel group multi-center	Typical symptoms	Alginate + antacid (20) vs. antacid (20) vs. placebo (20)	2 weeks (tablet)	Global improvement of symptoms	Alginate + antacid (11/20) vs. antacid (5/20) vs. placebo (7/20)
Barnardo *et al.*	Randomized, double-blind cross-over single center	Typical symptoms and reflux on barium	Alginate + antacid (26) vs. antacid (26)	6 weeks (tablet)	Global acceptability of treatment	Alginate + antacid (21/26) vs. antacid (5/26)
Chevrel	Randomized, open-label, cross-over single center	Typical symptoms and reflux on barium	Alginate (44) vs. antacid (44)	2 weeks (liquid)	Global improvement of symptoms	Alginate (37/44) vs. antacid (10/44)
Lang and Dougall	Randomized, parallel group multicenter	Reflux dyspepsia of pregnancy	Alginate + antacid (50) vs. antacid (47)	2 weeks (liquid)	Improvement in nighttime reflux symptoms	Alginate (41/50) vs. antacid (36/47)
Chatfield	Randomized, double-blind, parallel group multicenter	Typical symptoms ≥ 2 days/week	Alginate + antacid (46) vs. placebo (48)	4 weeks (liquid)	Global improvement of symptoms	Alginate + antacid (39/46) vs. placebo (17/48)
Giannini *et al.*	Randomized, open-label, parallel group multicenter	Typical symptoms ≥ 3 days/week	Alginate + antacid (87) vs. antacid (92)	2 weeks (liquid)	Complete absence of symptoms	Alginate + antacid (71/87) vs. antacid (68/92)
Lai *et al.*	Randomized, open-label, parallel group single center	Typical symptoms and EGD without erosions	Alginate (69) vs. antacid (65)	6 weeks (tablet)	Global improvement of symptoms assessed by physician	Alginate (42/65) vs. antacid (18/56)
Thomas	Randomized, double-blind, parallel group single center	Typical symptoms ≥ 5 days/week	Alginate + antacid (56) vs. placebo (54)	1 week (tablet)	Overall treatment response	Alginate + antacid (47/56) vs. placebo (34/54)
Proton pump inhibitor or histamine-2 receptor antagonist as comparators						
Bennett *et al.*	Randomized, parallel group single Center	Typical symptoms and positive pH test	Alginate + antacid (19) vs. alginate + antacid + H2RA (17)	6 weeks (tablet)	Global improvement of symptoms	Alginate + antacid (12/19) vs. alginate + antacid + H2RA (15/17)
Goves *et al.*	Randomized, single-blind, parallel group multicenter	Typical symptoms ≥ 2 days/week	Alginate (337) vs. PPI (333)	2 weeks (liquid)	Complete resolution of symptoms	Alginate (27/337) vs. PPI (90/333)
Poynard *et al.*	Randomized, open-label, parallel group multicenter	Typical symptoms ≥ 2 days/week	Alginate (180) vs. 5HTR agonist (173)	4 weeks (liquid)	Global improvement of symptoms	Alginate (158/180) vs. 5HTR agonist (120/173)
Manabe *et al.*	Randomized, open-label, parallel group multicenter	Typical symptoms ≥ 2 days/week andEGD without erosions	Alginate + PPI (26) vs. PPI (31)	4 weeks (liquid)	Complete resolution of regurgitation	Alginate + PPI (18/26) vs. PPI (20/31)
Pouchain *et al.*	Randomized, double-blind, parallel group multicenter	Typical symptoms ≥ 2 days/week	Alginate (120) vs. PPI (121)	1 week (liquid)	Self-assessed heartburn/pain relief	Alginate (62/120) vs. PPI (74/121)
Chiu *et al.*	Randomized, double-blind, parallel group Multicenter	Typical symptoms ≥ 2 days/week and EGD without erosions	Alginate (92) vs. PPI (91)	4 weeks (liquid)	Relief of heartburn or regurgitation	Alginate (49/92) vs. PPI (46/91)

EGD, upper endoscopy; GERD, gastroesophageal reflux disease; H2RA, histamine-2 receptor antagonist; PPI, proton pump inhibitor; UK, United Kingdom; 20 mg omeprazole daily; 5HTR, serotonin receptor, 20 mg cisapride daily; 400 mg cimetidine four times daily.

In one of the more recent double-blind studies, 110 patients with symptoms of GERD were given either alginate chewable tablets or a placebo for seven consecutive days. The primary endpoint compared the change in overall Reflux Disease Questionnaire (RDQ) symptom score (combined heartburn/ regurgitation /dyspepsia). After seven days there was a highly statistically greater decrease in overall RDQ symptom score in the alginate group compared with the placebo group ($P = 0.0033$), and for each of the symptoms independently. These results were achieved without any side effects.[26]

As far as comparing alginate to a PPI, there are two basic forms of GERD, one characterized by **erosion of the esophagus (ERD)** and another where there is **no esophageal erosion (NERD)**. The differentiation is important because NERD patients do not respond well to PPIs. It most people in the world, the NERD form is the most common. Patients suffering from this non-erosive form are perfect candidates for alginate therapy. However, even in the erosive form alginate is effective. One very detailed open label study that included patients with either ERD or NERD where alginate was given as the only treatment found that the treatment was "well-tolerated and effective in reducing heartburn by modifying esophageal acid exposure time, number of acid refluxes and their proximal migration."[27]

A double-blind study designed to evaluate the efficacy and safety of alginate compared to omeprazole (*Prilosec*) in adult subjects with NERD provides even more support for alginate in NERD. In the study, 195 NERD subjects were given either alginate three times a day or omeprazole once daily. The primary efficacy endpoint was the percentage of patients achieving adequate heartburn or regurgitation relief at day 28. Results showed no difference in effectiveness between the two treatments though the average symptom score was slightly lower in the alginate group it was not statistically significant.[28]

Considering the confirmed efficacy and remarkable safety profile and lack of side-effects, alginate therapy should be considered as a first line approach to symptomatic relief. It is safe for use during pregnancy.

Table 3. Common Signs and Symptoms of Low Gastric Acidity

- Bloating, belching, burning, and flatulence immediately after meals
- A sense of `fullness' after eating
- Indigestion, diarrhea or constipation
- Multiple food allergies
- Nausea after taking supplements
- Itching around the rectum
- Weak, peeling and cracked fingernails
- Dilated blood vessels in the cheeks and nose
- Acne
- Iron deficiency
- Chronic intestinal parasites or abnormal flora
- Undigested food in stool
- Chronic candida infections
- Upper digestive tract gassiness

Table 4. Diseases Associated with Low Gastric Acidity

- Addison's disease
- Asthma
- Celiac disease
- Chronic auto-immune disorders
- Chronic hives
- Dermatitis herpetiformis
- Diabetes mellitus
- Eczema
- Gallbladder disease
- Graves disease
- Hepatitis
- Hyper- and hypothyroidism
- Lupus erythematosis
- Myasthenia gravis
- Osteoporosis
- Pernicious anemia
- Psoriasis
- Rheumatoid arthritis
- Rosacea
- Sjogren's syndrome
- Thyrotoxicosis
- Vitiligo

HCL Replacement Therapy

Although much is said about hyperacidity conditions, a more common cause of indigestion is a lack of gastric acid secretion. **Hypochlorhydria** refers to deficient gastric acid secretion, while **achlorhydria** refers to a complete absence of gastric acid secretion. There are many symptoms and signs that suggest impaired gastric acid secretion including GERD, and a number of specific health conditions have been found to be associated with insufficient gastric acid output.[29]

The stomach's optimal pH range for digestion is 1.5-2.5. The use of antacids and acid-blocker drugs will typically raise the pH above 3.5. This increase effectively inhibits the action of **pepsin**, an enzyme involved in protein digestion that can be irritating to the stomach. Although raising the pH can reduce symptoms, it blocks the effects of both hydrochloric acid and pepsin on digestion.

Hydrochloric acid secretion aids in protein digestion, activates the protein-digesting enzyme pepsin, fights off the undesirable overgrowth of bacteria in the stomach and small intestine, and it encourages the flow of bile and pancreatic enzymes. Hydrochloric acid also facilitates the absorption of many nutrients, including folate, vitamin B12, ascorbic acid, beta-carotene, iron, and some forms of calcium, magnesium, and zinc.[30]

The bottom line is that without hydrochloric acid (HCL) and pepsin, proper protein digestion and nutrient absorption will not occur. In addition, a lack of HCL and/or pepsin can adversely affect the gut's microbial flora including the promotion of an overgrowth of the bacteria *Helicobacter pylori* that is associated with ulcer formation.

The ability to secrete gastric acid tends to decrease with age. Some studies have found low output of stomach HCL in over half of those over age 60.[2] The overgrowth of the bacteria *Helico-*

bacter pylori in the stomach has also been linked to lack of HCL secretion as well as gastroesophageal reflux disorder (GERD) and peptic ulcers. Low gastric output is thought to predispose to *H. pylori* colonization and *H. pylori* colonization increases gastric pH, thereby setting up a positive feedback scenario. This overgrowth chronically damages the lining of the stomach resulting in progressive thinning and loss of the cells that secret hydrochloric acid.[31]

The recommended adult dosage for HCL replacement therapy is one or two 500 mg capsules containing betaine HCL and the appropriate amount of acid stable protease or pepsin with meals up to three times daily. For best results I recommend the **HCL challenge method**:

1. **Begin by taking one capsule with meals. If this does not aggravate symptoms, at every meal after that of the same size, take one more tablet or capsule. (One at the next meal, two at the meal after that, then three at the next meal.)**

2. **Continue to increase the dose until reaching seven capsules or when you feel warmth in your stomach whichever occurs first. A feeling of warmth in the stomach means that you have taken too many capsules for that meal, and you need to take one less tablet for that meal size. It is a good idea to try the larger dose again at another meal to make sure that it was the HCL that caused the warmth and not something else.**

3. **After you have found that the largest dose that you can take at your large meals without feeling any warmth, maintain that dose at all of meals of similar size. You will need to take less at smaller meals.**

4. **When taking a number of capsules it is best to take them throughout the meal.**

5. **As your stomach begins to regain the ability to produce the amount of HCL needed to properly digest your food, you will notice the warm feeling again and will have to cut down the dose level.**

SAFETY

Cautions: Do not take HCL on an empty stomach. Consult a health care practitioner prior to use if suffering from active peptic ulcer, during pregnancy or while breast-feeding. Keep out of reach of children.

Side Effects: May cause mild gastrointestinal side effects such as nausea and stomach upset.

Melatonin

Several studies have shown melatonin is of considerable value in patients with GERD. **Melatonin** is a hormone secreted by the pineal gland, a small pea-sized gland at the base of the brain. It is critically involved in regulating the natural biorhythm of hormone secretion referred to as the "circadian" rhythm" as well as control sleep/wake cycles. Release of melatonin is stimulated by darkness and suppressed by light. The primary uses of melatonin are in the treatment insomnia and jet lag, but it has shown benefit it irritable bowel syndrome and GERD.

In a study of 36 patients with GERD, the subjects were placed into four groups: control (no treatment); 3 mg melatonin at bedtime; 20 mg of omeprazole (Prilosec) twice daily; and 3 mg of melatonin and 20 mg of omeprazole twice daily for 2 months.[32] After 8 weeks, those using the melatonin alone had a significant reduction in GERD symptoms, increase in LES pressure (i.e., better LES tone), increase in serum gastrin (a hormone which stimulates secretion of gastric juice and is secreted into the bloodstream by the stomach wall in response to the presence of food), a reduction in stomach acid output, and an increase in serum melatonin levels. Although omeprazole was also effective in reducing GERD symptoms, it did not significantly alter LES tone. These results clearly show the value of 3 mg melatonin at night is of considerable benefit to patients with GERD.

SOME FINAL COMMENTS

"The enemy of the conventional wisdom is not ideas but the march of events."

—John Kenneth Galbraith

The term **conventional wisdom** was coined by the noted economist John Kenneth Galbraith in his book *Affluent Society*, in 1958. According to Galbraith, conventional wisdom is established if it is simple, convenient, comfortable and comforting—though not necessarily true. Galbraith also said, "We associate truth with convenience with what most closely accords with self-interest or personal well-being." People want to believe conventional wisdom because it is indeed so simple, convenient, comfortable and comforting," even if it may not be true. And, once conventional wisdom on any topic is accepted, it becomes difficult to prove otherwise.

The reality is that the U.S. medical establishment has created a conventional wisdom that drug-oriented medicine is the best form of medicine. Yet, many of these drugs only make us feel better in the short-term with the risk of dependency or producing side effects worse than the condition being treated or causing the condition itself to worsen. The substantial risks and rising costs associated with a drug oriented medical system has led to a subtle revolution occurring in medicine for years and the emergence of a new paradigm. A paradigm refers to a model used to explain events. As our understanding of the environment and human body evolves, new paradigms (explanations) are developed. The new paradigm in medicine focuses on the interconnectedness of body, mind, emotions, social factors, and the environment in determining the status of health within an individual. And, while the old paradigm viewed the body basically as a machine that can be fixed best with drugs and surgery, the new model emerging utilizes these measures secondary to natural, non-invasive, techniques to promote health and healing. The relationship between the physician and patient is also evolving. The era of the physician as a demigod is over. The era of self-empowerment is beginning.

It is my sincere hope that you—or someone you care about—will use the information provided in the pages within this small book to achieve greater health and happiness. That is how this revolution in medicine gains momentum.

Be well,
Michael T. Murray, N.D.

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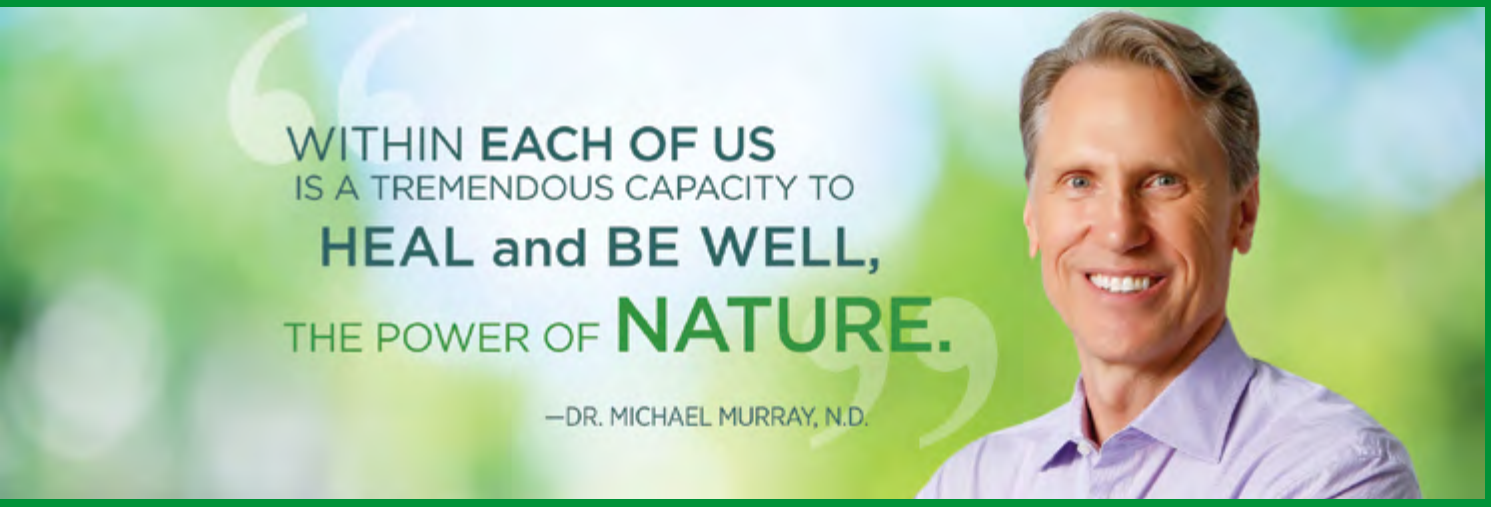

ABOUT DR. MURRAY

Michael T. Murray, N.D., is widely regarded as one of the world's leading authorities on natural medicine. Dr. Murray is a graduate, faculty member, and serves on the Board of Regents of Bastyr University. He is co-author of ***A Textbook of Natural Medicine***, the definitive textbook on naturopathic medicine for physicians, as well as the consumer version—***The Encyclopedia of Natural Medicine***. He has also written over 30 other books including ***The Magic of Food; Dr. Murray's Total Body Tune-Up, The Pill Book Guide to Natural Medicines, The Encyclopedia of Healing Foods***, and ***What the Drug Companies Won't Tell You and Your Doctor Doesn't Know***.

Dr. Murray is Chief Science Officer of Enzymedica and also works as a consultant to several major natural product raw material suppliers. Since 1985, Dr. Murray has been instrumental in bringing many safe and effective natural products to North America, including:

- **Glucosamine sulfate**
- **St. John's wort extract**
- **Ginkgo biloba extract**
- **Enteric-coated peppermint oil**
- **Saw palmetto berry extraxt**
- **PharmaGABA**
- **PGX**
- **Phytosomes**

For nearly forty years, Dr. Murray has been compiling a massive data-base of original scientific studies from the medical literature. He has personally collected over 70,000 articles from the scientific literature which provide strong evidence on the effectiveness of diet, vitamins, minerals, herbs, and other natural measures in the maintenance of health and the treatment of disease. It is from this constantly expanding data-base that Dr. Murray provides the answers on health and healing. According to Dr. Murray:

> ***"One of the great myths about natural medicine is it is not scientific. The fact of the matter is that for most common illnesses there is tremendous support in the medical literature for a more natural approach."***

Unfortunately, many people are never aware of the natural approach that can put them on the road to lifelong health. Dr. Murray has dedicated his life to educating physicians, patients, and the general public on the tremendous healing power of nature. In addition to his books, which have cumulative sales of over six million copies, Dr. Murray has written numerous articles for major publications, appeared on hundreds of radio and TV programs, and lectured to hundreds of thousand people nationwide.

Major Media Interviews/Features:

OZ · abc primetime · 20/20 · DATELINE · CBS NEWS SUNDAY MORNING · THE 700 CLUB · WebMD · PBS · msnbc

ACID-BLOCKING DRUGS ARE DANGEROUS

Fortunately, there are safe and effective alternatives

More than 15 million Americans currently use proton pump inhibitors, or PPIs, to treat heartburn due to gastroesophageal reflux disease (GERD). The drugs come in either in prescription or over-the-counter forms, including well-known names like Prevacid, Prilosec and Nexium. Studies show that while these drugs relieve symptoms fast, the longer you take them, the greater the risk of serious side effects such as:

- An increased risk for early mortality due to heart disease and strokes, or cancer.
- A significant risk for dementia and Alzheimer's disease
- Osteoporosis and bone fractures
- Infections and disruption of the microbiome
- Multiple nutrient deficiencies
- Chronic kidney disease

In this evidence-based and practical guide, Dr. Michael Murray highlights the best natural alternative to PPIs. And, if you are currently taking a PPI, guidelines are given on how to get off a PPI safely and permanently. It may save your health and even your life!

Doctor Murray
NATURAL LIVING