

# Low Stomach Acid & Digestion Sources

**Warning: Do not take HCl if you are currently taking any anti-inflammatory drugs and/or medications such as corticosteroids (e.g. predisone), aspirin, Indocin, ibuprofen (e.g. Motrin, Advil, etc.) or other NSAIDS. Do not take HCl if you have been clinically diagnosed with a stomach ulcer.**

<https://chriskresser.com/get-rid-of-heartburn-and-gerd-forever-in-three-simple-steps/>

Low Stomach may be one of root causes of IBS symptoms. Why? Low Stomach Acid opens the door to bacterial overgrowth in the small intestine and gut infections (in the stomach such as H. Pylori overgrowth and in the intestines). And research shows a link between IBS and bacterial overgrowth in the small intestine.

In the article “Bacteria and irritable bowel syndrome: The evidence for small intestinal bacterial overgrowth” published in July 2006 in the journal ‘*Current Gastroenterology Reports*’, it states:

“ ... a growing body of evidence links IBS to the presence of excessive bacteria in the small bowel, called bacterial overgrowth.”

“ ... Further work has also examined bacterial overgrowth in the context of the various symptoms of patients with IBS. These symptom complexes include constipation, diarrhea, and alternating forms of the condition.”

‘Lee, Hyo-Rang, and Mark Pimentel. "Bacteria and irritable bowel syndrome: the evidence for small intestinal bacterial overgrowth." *Current gastroenterology reports* 8.4 (2006): 305-311.’

<https://link.springer.com/article/10.1007/s11894-006-0051-3>

1. Low Stomach Acid opens the door to pathogenic overgrowth and gut infections (in the stomach such as H. Pylori overgrowth and in the intestines)

2. Low Stomach Acid opens the door to nutrient deficiencies in the body due to poor digestion and absorption of nutrients
3. Contrary to popular belief, heartburn, acid reflux and GERD are NOT due to too much acid but too little. And low stomach acid is becoming more and more of a common widespread problem.
4. Stomach acid drops as you age
5. The methods for addressing GERD (regular bouts of acid reflux and heart burn) are harmful to your body (PPIs)
6. Drugs to lower stomach acid DO NOT fix the problem and can actually worsen the situation, creating even more of the same symptoms of acid reflux, heartburn and GERD.

What is GERD?

According to the article "Diagnosing Gastroesophageal Reflux Disease" published in 2001 in the *Mayo Clinic Proceedings*. Vol. 76. No. 1, states:

"The most typical symptoms described for GERD are heartburn (retrosternal burning or a tight sensation radiating toward the neck) and acid regurgitation (the unpleasant return of sour or bitter gastric contents to the pharynx)."

Szarka, Lawrence A., Kenneth R. DeVault, and Joseph A. Murray. "Diagnosing gastroesophageal reflux disease." *Mayo Clinic Proceedings*. Vol. 76. No. 1. Elsevier, 2001.

<https://www.sciencedirect.com/science/article/abs/pii/S0025619611620909>

1. Low Stomach Acid can cause pathogenic overgrowth and gut infections (in the stomach such as H. Pylori overgrowth and in the intestines)

The lower the stomach acid, the higher the PH in the stomach. And the higher the PH, the less pancreatic enzymes will be released into the small intestines. You NEED pancreatic enzymes to digest carbohydrates! If carbohydrates don't get properly digested and absorbed in the small intestine, they will start to ferment in the gut. This feeds bacteria in the small intestine and can create massive amount of gas and bloating.

Although low carb diets can reduce uncomfortable symptoms such as acid reflux, heartburn, GERD, bloating and gas, (as shown in the article 'A very low-carbohydrate diet improves gastroesophageal reflux and its symptoms ' published in 2006 in the journal '*Digestive diseases and sciences*')

it's not addressing the root of the problem which is low stomach acid which causes bacterial overgrowth.

Austin, Gregory L., et al. "A very low-carbohydrate diet improves gastroesophageal reflux and its symptoms." *Digestive diseases and sciences* 51.8 (2006): 1307-1312.

<https://link.springer.com/article/10.1007/s10620-005-9027-7?fbclid=IwAR3PWVvYLnM9tkElp-tOy9tsqxUj1ftioL2LFJExaA-ThCaBFLVnCS-npWQ>

2. Low Stomach Acid can cause nutrient deficiencies in the body due to poor digestion and absorption of nutrients

I'm the article "Stomach acid and megavitamins." Published in *Journal of Orthomolecular Psychiatry* 5 (1976): 212-214 it states:

"Keuter (1959) found that a vitamin deficiency (B3) may be the result of prolonged poor absorption due to an insufficient production of HCl."

[https://isom.ca/wp-content/uploads/2020/01/JOM\\_1976\\_05\\_3\\_08\\_Stomach\\_Acid\\_and\\_Megavitamins.pdf](https://isom.ca/wp-content/uploads/2020/01/JOM_1976_05_3_08_Stomach_Acid_and_Megavitamins.pdf)

I'm the article "Gastric Balance: Heartburn and Gastritis Not Always Caused by Excess Acid" published on November 2018 in 'Nutrition Review' it states:

"The human requirement for vitamins, minerals and other nutrients remains relatively constant throughout adult life. Unfortunately our ability to properly digest food and absorb vital nutrients declines with advancing age. Surprisingly, one of the most common age-related causes of impaired digestive function is the reduction of hydrochloric acid produced by the stomach.

... Symptoms of low stomach acid include heartburn, indigestion and bloating, among others (Table 1). Additionally, a number of chronic health conditions are correlated with impaired acid secretion, including allergies, asthma and gallstones (Table 2)."

English, Jim. "Gastric Balance: Heartburn and Gastritis Not Always Caused by Excess Acid." *Nutrition Review*. Retrieved March 30 (2018): 2022.

<https://nutritionreview.org/2018/11/gastric-balance-heartburn-and-gastritis-not-always-caused-by-excess-acid/comment-page-1/>

3. Although, low stomach acid is becoming more and more of a common widespread problem, heartburn, acid reflux and GERD are NOT due to too much acid but too little.

In Chris Kresser's article 'What Everybody Ought to Know (But Doesn't) about Heartburn & Gerd', he shares a quote from Jonathan Wright's book (MD of the Yahoma Clinic in Washington) book [Why Stomach Acid is Good For You](#), where Jonathan explained how when he works with clients over the age forty who are experiencing acid reflux symptoms such as heartburn, indigestion and gas, over 90 percent of the time he's found inadequate acid production by the stomach.

According to the article "Epidemiology of gastro-oesophageal reflux disease: a systematic review" published in the journal 'Gut' (Gut, a leading international journal from BMJ and BSG, publishes cutting-edge gastroenterology and hepatology research and reviews) states:

"An approximate prevalence of 10-20% was identified for GORD (gastro-oesophageal reflux disease (GORD) ,defined by at least weekly heartburn and/or acid regurgitation in the Western world while in Asia this was lower, at less than 5%.

Dent, J., et al. "Epidemiology of gastro-oesophageal reflux disease: a systematic review." *Gut* 54.5 (2005): 710-717.

<https://gut.bmj.com/content/54/5/710.short>

And in the article "Update on the epidemiology of gastro-oesophageal reflux disease: a systematic review" published in 2014 in the journal 'Gut', it states:

"The range of GERD prevalence estimates was 18.1%-27.8% in North America, 8.8%-25.9% in Europe, 2.5%-7.8% in East Asia, 8.7%-33.1% in the Middle East, 11.6% in Australia and 23.0% in South America." ... "Evidence suggests an increase in GERD prevalence since 1995 ( $p < 0.0001$ ), particularly in North America and East Asia.

**Conclusions:** GERD is prevalent worldwide, and disease burden may be increasing. Prevalence estimates show considerable geographic variation, but only East Asia shows estimates consistently lower than 10%.”

El-Serag, Hashem B., et al. "Update on the epidemiology of gastro-oesophageal reflux disease: a systematic review." *Gut* 63.6 (2014): 871-880

[https://scholar.google.com/scholar?hl=en&as\\_sdt=0%2C44&q=Update+on+the+epidemiology+of+gastro-oesophageal+reflux+disease%3A+a+systematic+review&btnG=#d=gs\\_qabs&t=1671653094057&u=%23p%3DAVIAq2UJHEcJ](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C44&q=Update+on+the+epidemiology+of+gastro-oesophageal+reflux+disease%3A+a+systematic+review&btnG=#d=gs_qabs&t=1671653094057&u=%23p%3DAVIAq2UJHEcJ)

In the article “GERD Symptoms in the General Population: Prevalence and Severity Versus Care-Seeking Patients” published on May 9, 2014 in the science journal ‘*Digestive Diseases and Sciences*’ states:

“Prior estimates suggest that up to 40% of the US general population (GP) report symptoms of gastroesophageal reflux disease (GERD).”

Cohen, Erica, et al. "GERD symptoms in the general population: prevalence and severity versus care-seeking patients." *Digestive diseases and sciences* 59.10 (2014): 2488-2496.

<https://link.springer.com/article/10.1007/s10620-014-3181-8>

4. Low Stomach acid appears to drop as you age - but the true culprit is often H. pylori Overgrowth

Research shows that Stomach Acid declines as we age.

In the article “Fundic atrophic gastritis in an elderly population. Effect on hemoglobin and several serum nutritional indicators” published in 1986 in the *Journal of the American Geriatrics Society* 34.11, it reveals a study where:

“... fasting blood was obtained from 359 free-living and institutionalized elderly people (age range, 60 to 99 years). A pepsinogen I/pepsinogen II ratio less than 2.9, indicating atrophic gastritis, was found in 113 (31.5%) subjects. The prevalence of atrophic gastritis increased significantly with advancing age (P less than .05).”

Krasinski, Stephen D., et al. "Fundic atrophic gastritis in an elderly population: effect on hemoglobin and several serum nutritional indicators." *Journal of the American Geriatrics Society* 34.11 (1986): 800-806.

<https://agsjournals.onlinelibrary.wiley.com/doi/abs/10.1111/j.1532-5415.1986.tb03985.x>

Why?

Research shows that the true culprit is often H. pylori Overgrowth.

In the article 'Helicobacter pylori Infection in Geriatric Patients: Current Situation and Treatment Regimens' published on

*"Helicobacter pylori (H. pylori) has so far infected more than half the global population. It is the most important and controllable risk factor for gastric cancer. The elderly, who are at a higher incidence of the infection, are also commonly found to develop antibiotic resistance."*

5. The methods prescribed by doctors for addressing GERD (regular bouts of acid reflux and heart burn) are harmful to your body (PPIs)

One of the common 'solutions' to this growing problem is PPIs (Proton Pump Inhibitors).

Why are PPIs the go to?

Probably the biggest reason is pharmaceutical companies benefit massively!

In the article "Economic Evaluations of Gastroesophageal Reflux Disease Medical Management: A Systematic Review" published in 2014 in the journal '*Pharmacoeconomics*', it states:

"In the United States (US) alone, overall spending on all GI diseases is estimated to be \$142 billion (in 2009 US dollars) per year in direct and indirect costs [3]. GERD accounts for approximately \$15–20 billion of these direct and indirect costs [4]. A study in 1997 found that total unadjusted medical costs of GERD in a US health maintenance organization population (1550 people with GERD) were \$2089 higher than for controls; this corresponded to around \$471 in attributable costs [5]. Factors contributing to GERD-related costs include direct costs (e.g., medication use, diagnostic testing, physician visits, and hospitalizations) and indirect costs (e.g., decreased quality of life, work absenteeism, and loss of productivity). It has been estimated that prescribed medications for GERD,

primarily proton pump inhibitors (PPIs), account for over 50% of prescriptions for all digestive diseases, resulting in around \$10 billion in annual direct health care costs [1,4]. In 2010, one PPI (esomeprazole) accounted for the most retail dollars (>\$5.2 billion) out of all branded drugs sold in the US [6].”

Gawron, Andrew J., et al. "Economic evaluations of gastroesophageal reflux disease medical management." *Pharmacoeconomics* 32.8 (2014): 745-758.

<https://link.springer.com/article/10.1007/s40273-014-0164-8>

PPIs (lowers Stomach acid production, negatively affect diversity of bacteria your microbiome, pathogenic Bacteria such as E. coli, increase your chances of overgrowth of C Diff, you have a lowered nutrient deficiencies

<https://chriskresser.com/the-dangers-of-proton-pump-inhibitors/>

6. Drugs to lower stomach acid DO NOT fix the problem and can actually worsen the situation, creating even more of the same symptoms of acid reflux, heartburn and GERD.

According to the article “Evidence that proton-pump inhibitor therapy induces the symptoms it is used to treat” published in 2009 in the journal ‘*Gastroenterology*’, it states:

“Treating gastroesophageal reflux disease with profound acid inhibition will never be ideal because acid secretion is not the primary underlying defect.”

“ ... the drugs themselves may be causing or aggravating the disease process they are used to treat. Forty-four percent of previously asymptomatic subjects experienced clinically significant heartburn, acid reflux, or dyspepsia after discontinuing a 2-month course of esomeprazole 40 mg/d compared with 15% after placebo. “

McColl, Kenneth EL, and Derek Gillen. "Evidence that proton-pump inhibitor therapy induces the symptoms it is used to treat." *Gastroenterology* 137.1 (2009): 20-22.

[https://www.gastrojournal.org/article/S0016-5085\(09\)00780-X/fulltext](https://www.gastrojournal.org/article/S0016-5085(09)00780-X/fulltext)

So what DOES cause acid reflux, heartburn, & GERD?

Research shows that intra-abdominal pressure (IAP) creates bloating from which can put pressure on the *lower esophageal valve*, or LES causes it to open and stomach acid to enter the esophagus. (

(The esophagus has more delicate tissue than the stomach as the stomach has a string protected lining designed to handle stomach acid.)

What causes intra-abdominal pressure (IAP) which creates bloating from which can put pressure on the *lower esophageal valve* (LES) causing it to open?

There are many theories but the one I trust the most is outlined in Chris Kressor's article "The Hidden Causes of Heartburn and GERD". Kressor explains that low stomach acid is the root cause as low stomach acid opens the door to bacterial overgrowth (in the gastrointestinal tract) which creates carbohydrate malabsorption which results in bloating and gas. This bloating and gas creates intra-abdominal pressure (IAP) which creates bloating from which can put pressure on the *lower esophageal valve* (LES) causing it to open.

Last but not least, what actually causes low stomach acid in the first place?

There are a few possible causes:

1. Stress
  2. H Pylori Overgrowth
  3. Autoimmune atrophic gastritis
  4. Acid blocking medications & PPIs (although low stomach acid had to already be present for the stings to be prescribed as low stomach acid creates acid reflux/heartburn symptoms.
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1. Stress effects digestion system and therefore may contribute to low stomach acid.

In the article 'Mindful Eating: A Review Of How The Stress-Digestion-Mindfulness Triad May Modulate And Improve Gastrointestinal And Digestive Function' published in 2019 in the journal '*Integrative Medicine: A Clinician's Journal*', it states:

"Stress is related to functional gastrointestinal disorders (FGID) such as irritable bowel syndrome (IBS)and functional dyspepsia."

Cherpak, Christine E. "Mindful eating: a review of how the stress-digestion-mindfulness triad may modulate and improve gastrointestinal and digestive function." *Integrative Medicine: A Clinician's Journal* 18.4 (2019): 48.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7219460/>

In the article 'Relationship between job stress and functional dyspepsia in display manufacturing sector workers: a cross-sectional study' published in 2018 in the journal '*Annals of Occupational and Environmental Medicine*' states

"This study showed that job demand and occupational climates were associated with functional dyspepsia in female display manufacturing sector workers. Therefore, both clinical and mental health approaches should be used in the management of functional dyspepsia in women."

Nam, Younghyeon, et al. "Relationship between job stress and functional dyspepsia in display manufacturing sector workers: a cross-sectional study." *Annals of Occupational and Environmental Medicine* 30.1 (2018): 1-9.

<https://aoemj.biomedcentral.com/articles/10.1186/s40557-018-0274-4>

What is dyspepsia?

According to the article 'Functional dyspepsia—symptoms, definitions and validity of the Rome III criteria' published on 12 February 2013 in the peer reviewed journal '*Nature reviews Gastroenterology & hepatology*' it states:

"Dyspepsia refers to a heterogeneous group of symptoms that are localized in the epigastric region. Typical dyspeptic symptoms include postprandial fullness, early satiation, epigastric pain and epigastric burning, but other upper gastrointestinal symptoms such as nausea, belching or abdominal bloating often occur. Functional dyspepsia is defined as the presence of dyspeptic symptoms in the absence of an organic cause that readily explains them."

Tack, Jan, and Nicholas J. Talley. "Functional dyspepsia—symptoms, definitions and validity of the Rome III criteria." *Nature reviews Gastroenterology & hepatology* 10.3 (2013): 134-141.

<https://www.nature.com/articles/nrgastro.2013.14>

## 2. H Pylori overgrowth can cause low stomach acid

In the article "Helicobacter pylori and gastric acid: an intimate and reciprocal relationship" published in 2016 in the "open access, peer-reviewed journal in the" *Therapeutic Advances in Gastroenterology (TAG)* states that:

“Long-term infection of the oxyntic mucosa causes atrophy and marked reduced gastric acid secretion, leading to gastric hypoacidity and marked marked hypergastrinemia ...”

Waldum, H.L., Kleveland, P.M. and Sordal, O.F. (2016). *Helicobacteri Pylori and gastric acid: an intimate and reciprocal relationship*, 9(6): 836-844

[https://scholar.google.com/scholar?hl=en&as\\_sdt=0%2C44&q=Waldum%2C+H.L.%2C+Kleveland%2C+P.M.+and+Sordal%2C+O.F.+%282016%29.+Helicobacteri+Pylori+and+gastric+acid%3A+an+intimate+and+reciprocal+relationship%2C+9%286%29%3A+836-844&btnG=](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C44&q=Waldum%2C+H.L.%2C+Kleveland%2C+P.M.+and+Sordal%2C+O.F.+%282016%29.+Helicobacteri+Pylori+and+gastric+acid%3A+an+intimate+and+reciprocal+relationship%2C+9%286%29%3A+836-844&btnG=)

In the article ‘Systematic review with meta-analysis: the worldwide prevalence of *Helicobacter pylori* infection’ published on 12 February 2018 in the journal ‘*Alimentary Pharmacology & Therapeutics*’ states:

“Analysis of 410 879 participants from 73 countries in six continents revealed an overall prevalence of 44.3% (95% CI: 40.9-47.7) worldwide.

Zamani, M., et al. "Systematic review with meta-analysis: the worldwide prevalence of *Helicobacter pylori* infection." *Alimentary pharmacology & therapeutics* 47.7 (2018): 868-876.

<https://onlinelibrary.wiley.com/doi/10.1111/apt.14561>

In the article “*Helicobacter pylori* infection and chronic gastric acid hyposecretion” published in July 1997 in the journal ‘*Gastroenterology*’ it states:

“In some subjects, chronic *H. pylori* infection produces a body-predominant gastritis and profound suppression of gastric acid secretion ...”

El-Omar, E M et al. “*Helicobacter pylori* infection and chronic gastric acid hyposecretion.” *Gastroenterology* vol. 113,1 (1997): 15-24. doi:10.1016/s0016-5085(97)70075-1

<https://pubmed.ncbi.nlm.nih.gov/9207257/>

3. Autoimmune atrophic gastritis can cause low stomach acid as it’s an autoimmune condition that attacks the stomach’s perietal cells and

destroys them. Without parietal cells, there won't be proper amounts of stomach acid produced.

In the article “Autoimmune atrophic gastritis—pathogenesis, pathology and management” published in June 2013 in the journal ‘Nature’, it states:

“A complex interaction of autoantibodies against the parietal cell proton pump and sensitized T cells progressively destroy the parietal cells, inducing hypochlorhydria and then achlorhydria, while autoantibodies against the intrinsic factor impair the absorption of vitamin B12.”

Neumann, W.L., Coss, E., Rugge, M. and Genta, R.M. (2013). Autoimmune atrophic gastritis- pathogenesis, pathology and management. *Nature Reviews Gastroenterology and Hepatology*, 10(9): 529-541

<https://www.nature.com/articles/nrgastro.2013.101>

4. Acid blocking medications & PPIs can cause low stomach acid (although low stomach acid had to already be present for the medications to be prescribed as low stomach acid creates acid reflux/heartburn symptoms.)

PPIs block the parietal cells (the cells in the stomach that produce. Hence, lower stomach acid.

“Recently, based primarily on observational/epidemiological studies, there have been an increasing number of reports raising issues about safety and side-effects with very long-term chronic treatment. Some of these safety issues are related to the possible long-term effects of chronic hypergastrinemia, which occurs in all patients taking chronic PPIs, others are related to the hypo-/achlorhydria that frequently occurs with chronic PPI treatment, ...”

Lee, L., Ramos-Alvarez, I., Ito, T. and Jensen, R.T. (2019). Insights into effects/risks of chronic hypergastrinemia and lifelong PPI treatment in man based on studies of patients with Zollinger-ellison syndrome. *International Journal of Molecular Sciences*, 20(20): 5128

[https://scholar.google.com/scholar?hl=en&as\\_sdt=0%2C44&q=Lee%2C+L.%2C+Ramos-Alvarez%2C+I.%2C+Ito%2C+T.+and+Jensen%2C+R.T.+%282019%29.+Insights+into+effects%2Frisks+of+chronic+hypergastrinemia+and+lifelong+PPI+treatment+in+man+based+on+studies+of+patients+with+Zollinger-ellison+syndrome.+International+Journal+of+Molecular+Sciences%2C+20%2820%29%3A+5128&btnG=#d=gs\\_qabs&t=1672475884293&u=%23p%3DiR0SkE-nZHAJ](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C44&q=Lee%2C+L.%2C+Ramos-Alvarez%2C+I.%2C+Ito%2C+T.+and+Jensen%2C+R.T.+%282019%29.+Insights+into+effects%2Frisks+of+chronic+hypergastrinemia+and+lifelong+PPI+treatment+in+man+based+on+studies+of+patients+with+Zollinger-ellison+syndrome.+International+Journal+of+Molecular+Sciences%2C+20%2820%29%3A+5128&btnG=#d=gs_qabs&t=1672475884293&u=%23p%3DiR0SkE-nZHAJ)

How do we address possible H. pylori Overgrowth?

Powerful eradication herbs in our eradication process. Herbs have been shown to be beneficial in eradicating H. Pylori. (Refer to article 'Herbal medicine as an auspicious therapeutic approach for the eradication of Helicobacter pylori infection: A concise review' published on Aug 2019 in the journal '*Journal of cellular physiology*').

Ghasemian, Abdolmajid et al. "Herbal medicine as an auspicious therapeutic approach for the eradication of Helicobacter pylori infection: A concise review." *Journal of cellular physiology* vol. 234,10 (2019): 16847-16860. doi:10.1002/jcp.28363

<https://pubmed.ncbi.nlm.nih.gov/30847906/>

How do we address Low Stomach Acid?

1. We address low stomach acid through supplementation for a while. We recommend supplementation with HCl w/ Pepsin throughout the 8 week recipe plans. You may or may not feel you need to continue supplementing after finishing this program. We will give you recommendations on resources involving continuing to take HCl in week 12.
2. We address pathogenic overgrowth in the stomach and intestines which can create intra-abdominal pressure (IAP) creating bloating from which can put pressure on the *lower esophageal valve*, or LES. We address this pathogenic overgrowth in the stomach and intestines through our eradication antimicrobials and our recipe plans which temporarily lower carbohydrates (high levels of carbohydrates and fructose feed pathogenic bacteria causing them to proliferate in the gut and grow). (See article 'Improvement of gastroesophageal reflux disease after initiation of a low-carbohydrate diet: five brief case reports' published in 2001 in the journal '*Alternative therapies in health and medicine*').
3. We recommend that you do not drink with your meals as water will dilute stomach acid. It's best to drink half hour before meals or 45 minutes after eating a meal.
4. When you sit down to eat, really relax and get into rest/digest. Bless your food with gratitude and use the heart monitor before you start eating to get into a few minutes of heart coherence.
5. Chew, chew, chew your food!

Sources:

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