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H. PYLORI

A Guide to Helping You Heal from a Sneaky Stomach Bug

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A DEEPER DIVE INTO H. PYLORI

Healing from an H. pylori infection is an important aspect of addressing the root causes of many physical imbalances.

HOW TO HEAL



BACKGROUND OF THE BACTERIA

What is H. pylori?

- Heliobacter Pylori or "H. pylori" is a gramnegative bacterium that lives in the stomach of effected individuals.
- H. pylori effects over half of the world's population, and is the #1 cause of stomach cancer and ulcers.

How is H. pylori contracted?

- H. pylori is considered contagious because it is transmitted between people.
- It can be transmitted through several routes including fecal-oral, saliva, and through sexual activity.



Illustration, Antonie Dore.



What are symptoms of H. pylori?

While most individuals infected with H. pylori are asymptomatic, others may experience symptoms of indigestion such as:

- upper abdominal discomfort
- heartburn or reflux
- upper abdominal bloating or gas
- frequent belching after meals
- nausea or vomiting
- early satiety (feeling full early into a meal)



BACKGROUND OF THE BACTERIA



Illustration, Casie Wilson

What is "LPS"?

- "LPS" or Lipopolysaccharide, is an endotoxin found on the outer surface of some bacteria, including H. pylori. LPS protects the bacteria from anti-microbial treatments and immune system attacks.
- LPS is the main part of the bacteria that interacts with our immune system. It **triggers an immune response** which causes inflammation, production of toxic free-radicals, and occasionally a fever.
- The type of LPS produced by H. pylori is less stimulating to the immune system when compared to other bacteria. This allows H. pylori to evade the immune system and survive undetected, which causes persistent infection.
- H. pylori LPS has a unique ability to disguise itself and mimics normal parts of the body, which is why H. pylori is associated with autoimmunity.
- When H. pylori is alive, LPS damages stomach tissue integrity and contributes to ulceration.
- LPS is mostly released into circulation when H. pylori is being destroyed, which can cause inflammation and tissue damage, causing "die-off" symptoms (see page 5 for more information).

How much inflammation does H. pylori cause?

While we know that H. pylori causes local inflammation, it has been associated with increases in inflammatory markers, like CRP (C-reactive protein), which suggests possible systemic inflammation.





WHY WE TREAT H. PYLORI

Gastrointestinal Effects:

H. pylori impacts the gastrointestinal system and is associated with many conditions throughout the body.

Dyspepsia (see symptoms on page 2)

Atrophic Gastritis

- Definition: Acute or chronic Inflammation and degeneration of the stomach.
- Up to 90% of people don't have symptoms, however **everyone** infected with H. pylori will have microscopic stomach inflammation.
- H. pylori injures stomach tissue by producing reactive oxygen species, which destroy cells and damages their DNA.
- Adding insult to injury, H. pylori decreases gastric glutathione, a powerful antioxidant produced by our bodies to defend against oxidative damage, leading to less protection against reactive oxygen species.

Peptic Ulcer Disease

• H. pylori degrades the mucous layer of the stomach leading to **ulceration**. Ulcers can also form in the duodenum of the small intestine.

Gastric Cancer

- H. pylori is a "group 1 carcinogen," meaning it has been proven to cause stomach cancer.
- Some strains of H. pylori produce an oncoprotein called "CagA," which causes cells to transform into tumor cells.
- Adenocarcinoma and Gastric MALT Lymphoma are two types of stomach cancer highly associated with H. pylori.

Gastric Acid Suppression

- To survive in the stomach, H. pylori decreases stomach acid by suppressing its production and by producing ammonia to neutralize it.
- Having lower levels of stomach acid impairs digestion leading to nutrient deficiencies.
- Stomach acid is also an important defense mechanism against other GI pathogens, low acid levels means a weakened defense.
- Alternatively, in some cases decreased stomach acid can cause the body to over compensate with acid production, leading to increased symptoms of heart burn, upper abdominal pain, and ulcers.

Nutrient Deficiencies

• H. Pylori nutrient deficiencies include vitamin B12, vitamin C, and iron. Pregnant women with H. pylori, especially have an increased risk of iron deficiency anemia.

Microbiome Changes:

- H. pylori causes distinct alterations in species and function of GI microflora, this shift increases the risk of B12 deficiency.
- H. pylori promotes growth of certain strains of bacteria, some of which are pathogenic.





WHY WE TREAT H. PYLORI (CONTINUED)

Effects Beyond the Gastrointestinal System:

H. pylori is associated with many diseases of the skin, nervous system, blood, eye, heart, metabolism, liver-gallbladder, hormones & pregnancy.

🕨 Skin

- Rosacea*
- Prurigo (intensely itchy nodules)
- Chronic idiopathic urticaria* (chronic hives of unknown origin)
- Alopecia aerata (conflicting evidence)
- Psoriasis (conflicting evidence)
- Autoimmune bullous diseases: pemphigus, pemphigoid, epidermolysis bullosa acquisita, dermatitis herpetiformis, and linear immunoglobulin A disease
- Schöenlein-Henoch purpura

Neurological

- Parkinson's Disease*
- Ischemic stroke
- Alzheimer's disease/reduced cognitive ability
- Guillain-Barré syndrome

Hematologic

- Iron deficiency anemia*
 - Why? H. pylori competes for dietary iron which is required for its growth. Additionally, iron requires an acidic environment for absorption and H. pylori creates a more alkaline environment.
- Chronic Immune thrombocytopenia* (Autoimmune destruction of platelets.)
- Other: Autoimmune Neutropenia, Anti-Phospholipid Syndrome, and Plasma Cell Dyscrasias (conflicting evidence)

Ocular

- Open-Angle Glaucoma*
- Central Serous Chorioretinitis*
- Blepharitis

Cardiovascular

- Coronary Atherosclerotic Disease
- Myocardial Infarction (Heart Attack)

Metabolic

• Insulin resistance

Hepatobiliary

- Nonalcoholic fatty liver disease (NAFLD)
- Autoimmune liver disease (primary biliary cirrhosis and primary sclerosing cholangitis)

Endocrine

• Autoimmune thyroid disease (Grave's disease)

Pregnancy

- Increased risk of preclampsia
- Hyperemesis gravidarum (severe nausea and vomiting)
- Severe Heartburn



*= Strong Association



WHY WE TREAT H. PYLORI (CONTINUED)

Effects on Fertility

There is a significant association between H. pylori and infertility.

> Female Factor:

- H. pylori antibodies have been found in cervical mucus, leading to abnormal movement of sperm through the cervical mucus, effecting their ability to fertilize the egg.
- There is a correlation between the presence of H. pylori antibodies in the serum and cervical mucus, therefore serum antibodies may indicate cervical mucus antibodies.

Male Factor:

- Some strains of H. pylori decrease semen quality, specifically decreasing sperm motility, increasing sperm cell death, and abnormal morphology.
- Treatment of H. pylori has been shown to improve sperm motility.
- Males infected with H. pylori have higher levels of inflammatory mediators in semen samples.

Both Female and Male Factor

 There is a significant correlation between H. pylori infection, H. pylori antibodies and anti-sperm antibodies, among patients that struggle with fertility.



Reasons to Treat Regardless of Symptoms:

- Resolve chronic gastritis
- Decrease risk of ulcers and gastric cancer
- Restore healthy stomach acid levels and gut microbiome health to improve digestion and protect against other GI pathogens
- Treat the underlying cause of nutrient deficiencies
- Improve cervical mucus and sperm health





HOW TO HEAL FROM H. PYLORI



Treatment Guidelines

- H. pylori is standardly treated with antibiotics despite strong microbial resistance and poor eradication rates.
- Naturopathic methods include using antimicrobial herbs such as licorice root and mastic gum which have been shown to stop the growth of H. pylori.
- We aim to restore GI microbiome balance, a healthy mucosal lining, and digestive health with botanicals, probiotics, dietary recommendations and digestives enzymes.

It may get worse before it gets better...

The Jarisch-Herxheimer phenomenon describes a constellation of symptoms that may occur while taking an anti-microbial treatment for pathogens that are classified as "spirochetes." Since H. pylori is a spirochete, it is not uncommon to experience a Jarisch-Herxheimer reaction or "die-off" symptoms while completing a treatment protocol for H. pylori. While it is not completely understood what causes this reaction, it has been attributed to the release of inflammatory endotoxins (including LPS) from the bacterial cell wall when it's destroyed.

These symptoms can include:

- Flu-like symptoms (fever, chills, malaise, body aches, headache, worsening of skin rashes)
- Aggravation of H. pylori symptoms

Ways to Support Your Body During Treatment and "Die-off" Reactions:

You can help decrease die-off symptoms and support your body by using the tools listed below. **Consult with your physician for specific recommendations**, they may suggest that you pause the antimicrobial treatment until symptoms improve.

- Eat high fiber foods to support elimination
- Eat foods rich in antioxidants like berries and leafy greens
- Increase water consumption
- Help your body eliminate toxins with dry-skin brushing and by sweating (sauna, exercise)
- Try binder supplements like activated charcoal and zeolite clay
- Try hot castor oil packs applied to the abdomen
- Drink carminative herbal teas to help with gastrointestinal symptoms (ginger, cardamom, fennel, peppermint, chamomile)



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