

Spring 2018

### When Medical Fiction Becomes Medical Fact A Reflection on the Discovery of H. pylori's Connection to Stomach Ulcers

For decades, doctors believed that stomach ulcers were caused by emotional stress, eating spicy foods, smoking, or other unhealthy lifestyle habits. In 1982, two Australian researchers, Barry J. Marshall and J. Robin Warren, put forth the idea that a bacteria called *Helicobacter pylori* (*H. pylori*) was responsible for stomach (gastric) and duodenum (in the upper part of the small intestine) ulcers. The pair identified the bacteria as an infectious disease which could be treated with the correct medications. As is often the case with new theories that go against the grain, there was disbelief in the medical community. It has even been reported that these two researchers were laughed at for their revolutionary idea. Fast forward to today, and the standard treatment for ulcers is antibiotics to eliminate *H. pylori*. Newer generations of medical professionals know no different, only that *H. pylori* is responsible for more than 90% of duodenal ulcers and up to 80% of gastric ulcers.

In the last half decade, there has been an increasing interest in the microbiome, or the ecosystem of bacteria, viruses, and fungi, that live in the gastrointestinal tract. We are continually learning how our "gut bugs" interact with each other and influence not only the health of the G.I. tract, but of the immune system and even the brain. In the same way that *H. pylori* colonies attack the lining of the stomach and small intestine, so too can other harmful microbial strains. The delicate, one-cell thick lining between the G.I. tract and the bloodstream is easily irritated and becomes permeable, thereby allowing pathogens, toxins and undigested food proteins to gain access to the rest of the body. This crossover into the bloodstream is colloquially known as "leaky gut" and the subsequent inflammatory reaction by the immune system -- over time -- is believed to contribute to the development of autoimmune conditions, such as arthritis, Crohn's disease, fibromyalgia, type 1 diabetes, and diseases characterized by neurodegenerative decline. This discovery is changing the way in which diseases are treated by focusing on strategies that improve the health of the microbiome and strengthen the integrity of the G.I. lining.

## Maintaining a Healthy Gut

Avoid over-the-counter and prescription pain medications which irritate the G.I. lining.

Do not take antibiotics unless absolutely necessary, as they also kill the good gut bacteria.

Avoid glyphosate-contaminated foods as this herbicide can kill the good gut bacteria.

Reduce the amount of sugar and simple carbohydrates in the diet, as they promote a overgrowth of yeast in the gut and elsewhor

Avoid overconsumption of alcohol, caffein and other gut-irritating substances.

Eat organic foods whenever possible.

Avoid gluten if you are sensitive to it.

#### RESEARCH PEARLS: Middle-Age Weight Gain

Researchers have identified an enzyme called DNAdependent protein kinase (DNA-PK) which promotes weight gain and the loss of exercise capacity beginning in midlife. DNA-PK is thought to be activated by DNA damage; as one ages, DNA-PK activity increases. DNA-PK activity is also thought to affect metabolism, which is important to digestion and elimination of waste. By identifying a drug which inhibits DNA-PK activity in animal studies, the researchers are aiming for the development of a

new weight loss medication which can promote weight loss and fitness levels as well as decreasing obesity and type 2 diabetes.

Cell Metab. 2017 May 2;25(5):1135-1146.

### Infection Prevention Your microbiome vs. your restaurant meal

The Centers for Disease Control and Prevention (CDC) estimates that 48 million Americans get sick from a foodborne illness annually; 128,000 are hospitalized, and 3,000 die. These infections are caused by a variety of bacteria, viruses, and parasites. In fact, researchers have identified more than 250 sources of foodborne illnesses, some of which can be life-threatening. People most at risk include young children, older adults, pregnant women, and individuals with compromised immune systems, such as people with diabetes, liver disease, kidney disease, organ transplants, HIV/AIDS, or those undergoing cancer treatment.

Restaurants, even the "nice" ones, can be a harbinger for microbes that cause foodborne illnesses. They often lurk in the most unlikely of places and can survive on hard surfaces for up to 24 hours. Some of the top culprits include:

**MENUS** are rarely changed from customer to customer, nor are they disinfected with any regularity, so unless you are the first customer of the day to use a completely fresh menu, you're undoubtedly sharing germs with a lot of people. HYGIENE TIP: After ordering your meal and before you eat, go to the restroom to wash your hands or use hand sanitizer.

**LEMON WATER** or the lemon on the rim of your ice tea glass is often contaminated with salmonella or fecal bacteria as a result of knives tainted with meat juices or employees not washing their hands after using the restroom. HYGIENE TIP: Skip the lemon.

**CONDIMENT CONTAINERS** are rarely cleaned throughout the day, so the germs of everyone who used the ketchup, mustard, salt, or pepper before you are waiting for you to pick them up. HYGIENE TIP: Avoid touching your eyes, nose, or mouth after using any of the condiments, or handle them with a paper napkin which you do not use for anything else.



If a restaurant does not care to clean its bathroom, chances are the kitchen is filthy too.

**Ritu Dalmia** 

**Dear Dr. Liker...** What is the difference between diverticulosis and diverticulitis?

It's common to have small pouches in the lining of the large intestine (colon) that extend



outward through weak spots in the lining. One pouch is a *diverticulum*, and multiple are *diverticula*. *Diverticulosis* is the condition you have when diverticula are present; most people do not experience any symptoms. However, if the diverticula become inflamed, the condition is called *diverticulitis* and typically causes lower left abdominal pain and tenderness. Between 10 and 25 percent of people with diverticulosis develop diverticulitis.

For most people, the pain is severe and comes on suddenly, but others may experience mild pain which worsens over several days. The intensity of the pain can also fluctuate, accompanied by nausea, vomiting, fever, chills, intestinal cramping, or changes in bowel habits. Diverticulitis can lead to bleeding, infections, small tears in the intestinal lining, or blockages in the colon. It is a serious condition that requires medical treatment to prevent it from developing into a more life-threatening condition, such as sepsis.

The leading, yet unproven theory is that a low-fiber diet and the resulting constipation cause diverticular disease. American doctors first began noticing the condition in the early 1900s; this coincided with the advent of processed foods as they became a large part of the American diet.

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