

ERMAHGERD

IT's GERD.

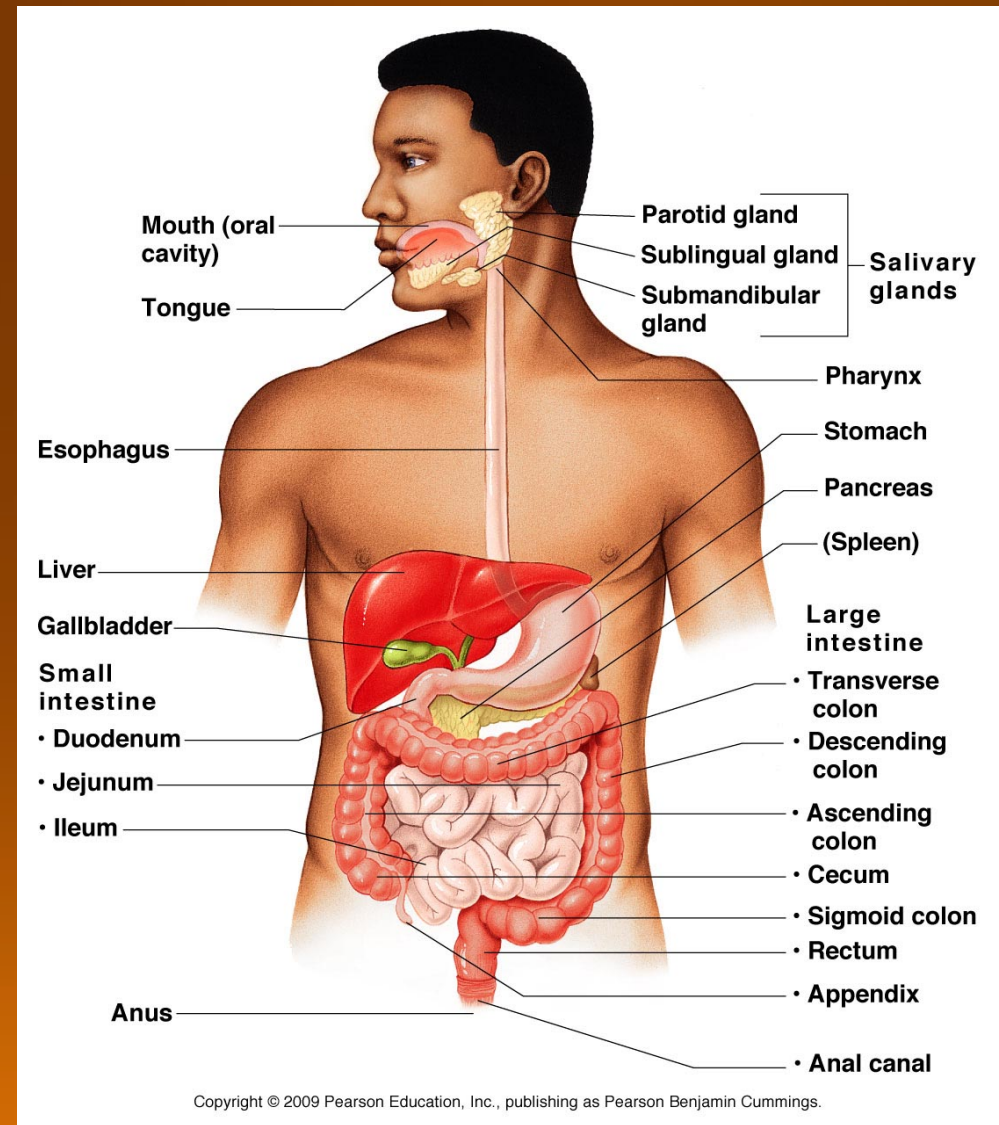
Introduction-

You can trust your gut, I know a lot about guts.

- Certified Physician Assistant for 11 years.
- Graduated from Midwestern University in Glendale, AZ in 2010.
- Have worked with patients suffering from digestive issues throughout my career with 2.5 years specifically in gastroenterology (GI), as well as primary care and urgent care
- Also 4 years in cardiology – surprisingly a lot of crossover with “chest pain.”

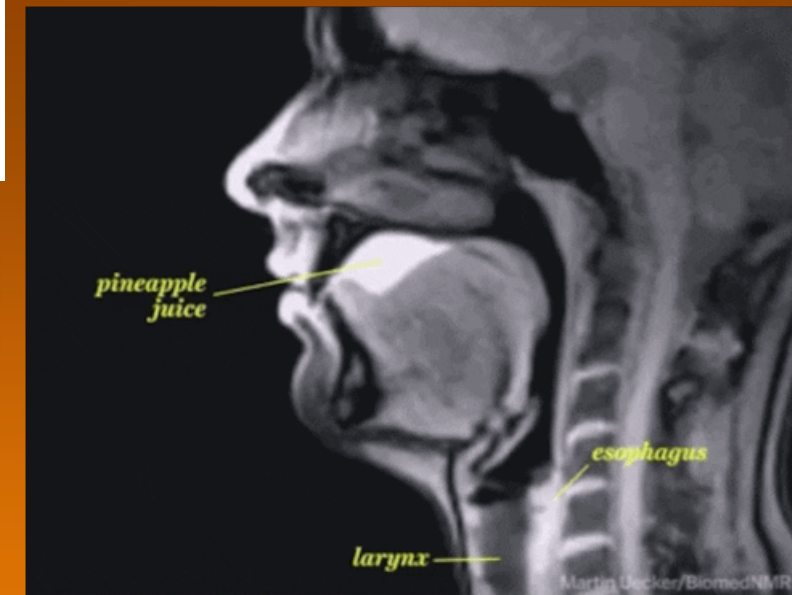
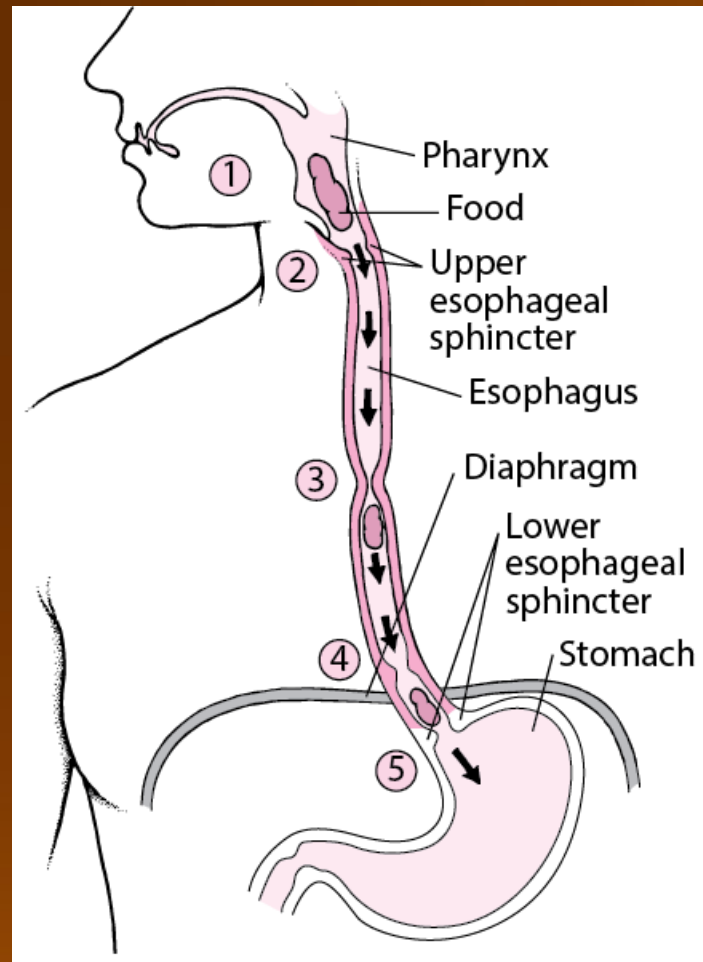
Digestive tract basics

- From mouth to anus – Converting the food/beverages you consume into necessary components (carbohydrates, lipids/fats, proteins, and nucleic acids) required to live, then expelling the waste.
- Our focus is the upper part—
Esophagus and Stomach



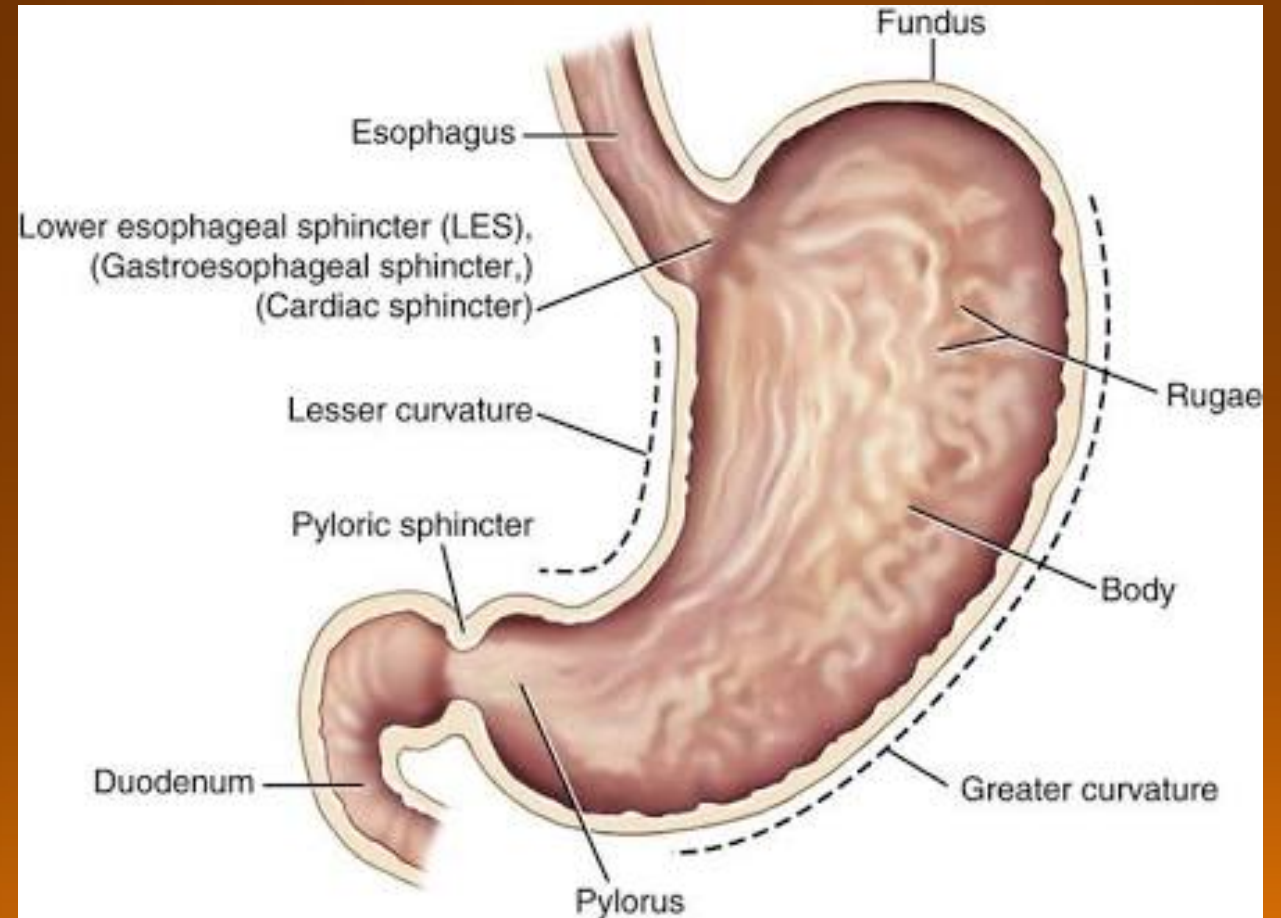
Esophagus

- Long muscular tube that transmits the food “bolus” from the mouth to the stomach
- Smooth muscle contractions occur in a very coordinated pattern to propel the food into the stomach
- Upper esophageal sphincter (UES) at the top, and lower esophageal sphincter (LES) at the bottom



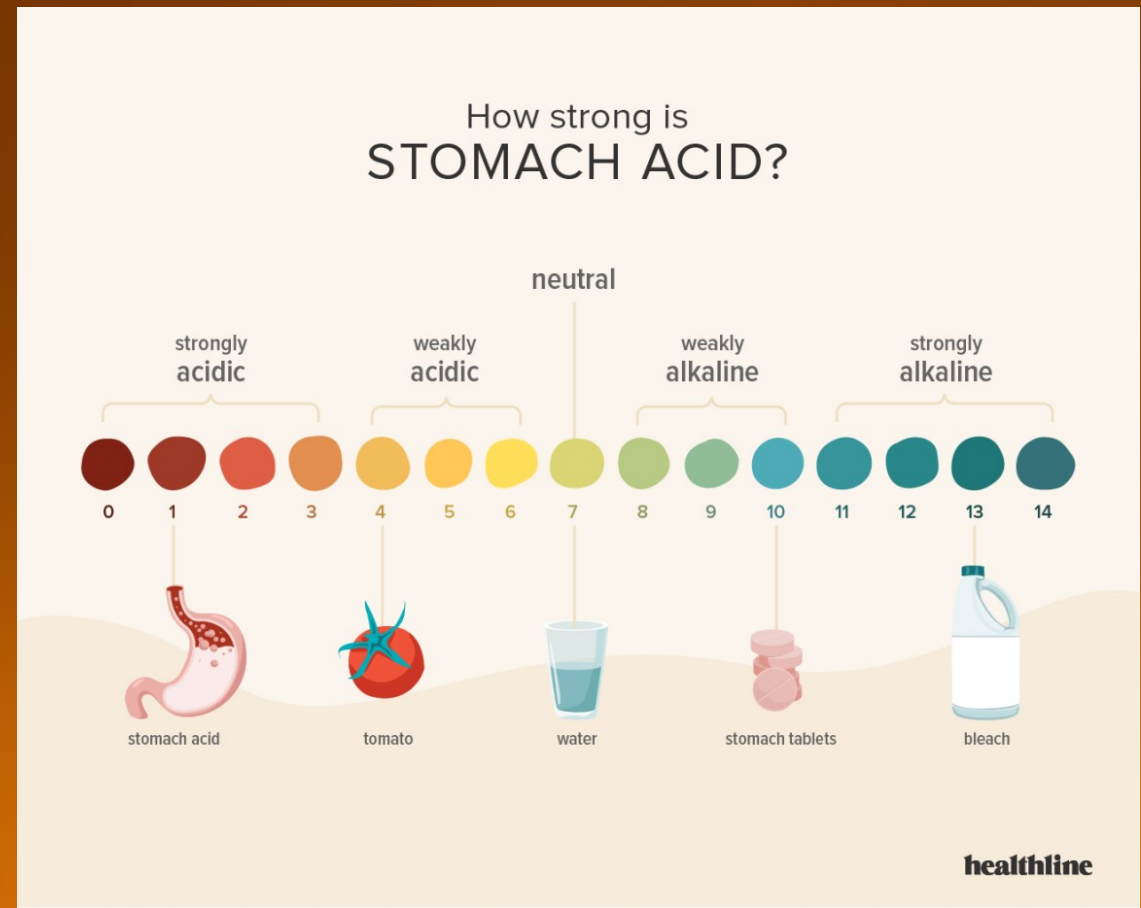
Stomach

- J-shaped tank for holding food while initial stages of digestion begin.
- Capped on either end by sphincters.
- LES at the top
“gastroesophageal junction”
- Pyloric sphincter at the end
- Filled with gastric juices



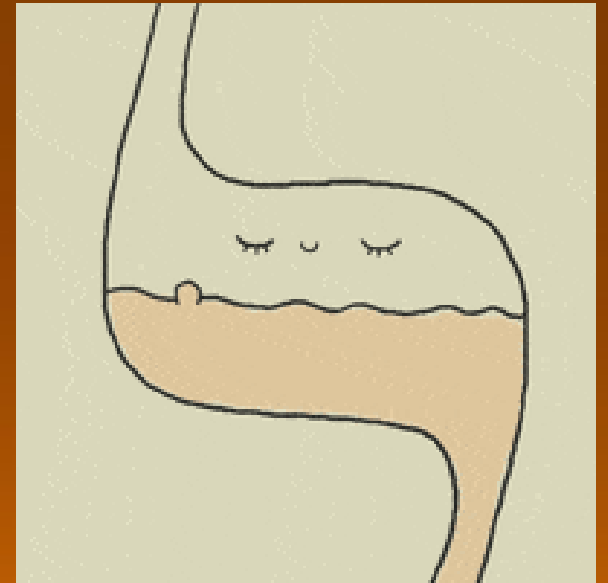
Stomach

- Gastric juices made of hydrochloric acid, digestive enzymes, water, salts, intrinsic factor
- Also lined with protective layer of mucus called mucin.
- Has buffering agents/mechanisms to help keep the pH from getting too low



Stomach (last one, promise)

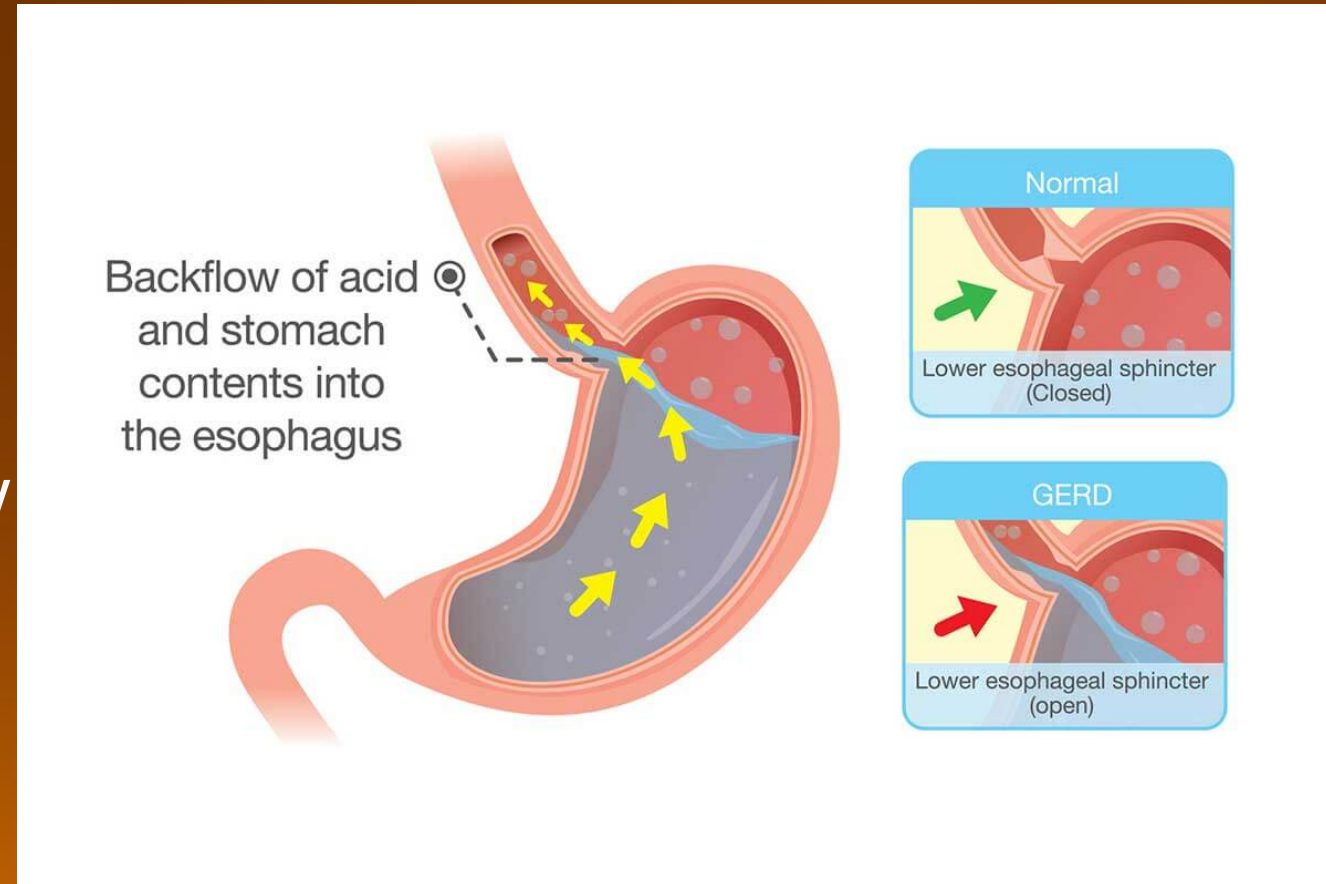
- Acidity serves to: break down food, kill harmful bacteria, and convert digestive proenzymes to enzymes to further breakdown food
- Gastric juices begin to flow even before you've eaten, stimulated by the brain and senses → seeing, smelling, thinking about food!
- Important to note: the stomach has a protective layer/barrier it creates to keep from autodigesting
- The esophagus DOES NOT.



GERD GERD GERD, GERD'S THE WORD.

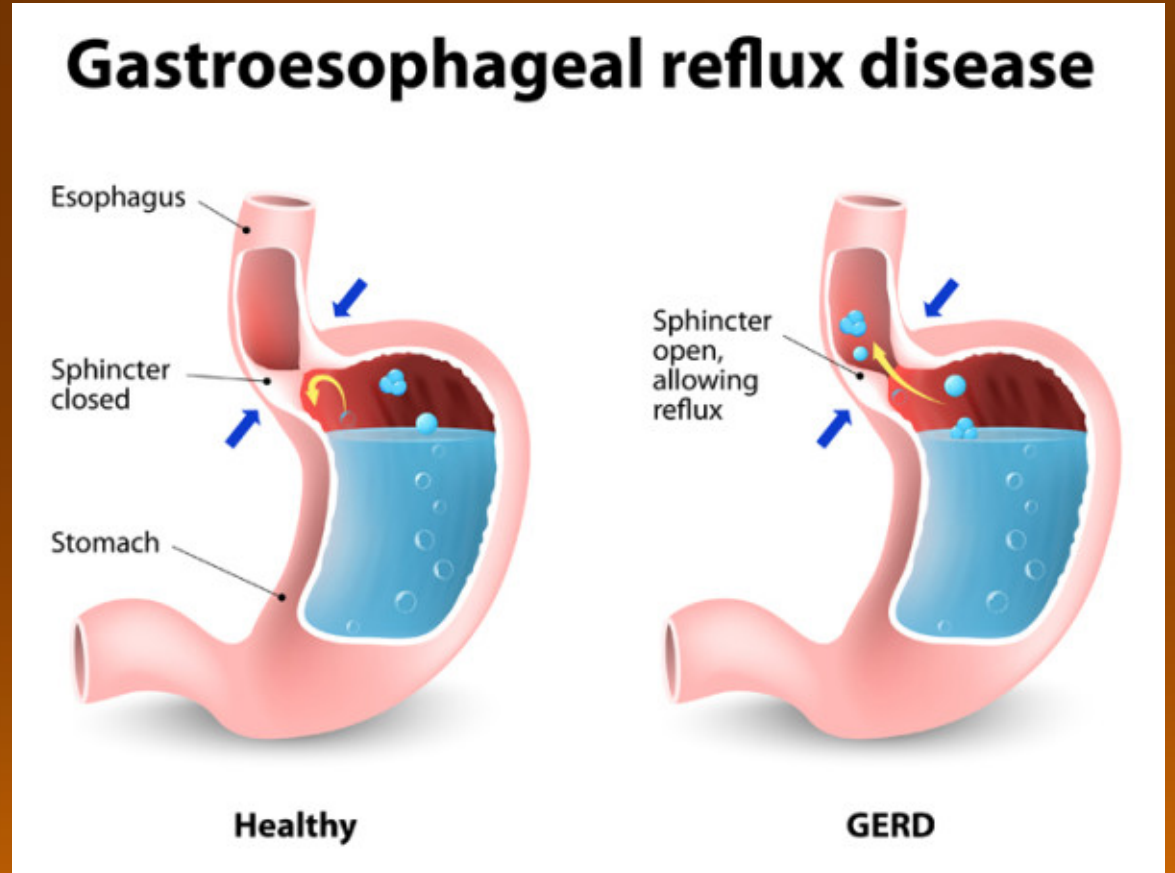
Gastroesophageal Reflux Disease-AKA heartburn, acid indigestion, acid reflux, sour stomach, etc.

- Breakdown of the name:
 - Gastro = Stomach
 - Esophageal = Esophagus
 - Reflux = The backwards flow of contents of something through a vessel or valve in the body
 - Disease = A disorder of structure or function



GERD

- If the LES relaxes abnormally or weakens, stomach acid can flow back up into your esophagus. This constant backwash of acid irritates the lining of your esophagus, often causing it to become inflamed.
- Gastroesophageal reflux can be normal, and even occasional heartburn can be normal.
- Symptoms > 2x/week or if symptoms are moderate or severe 1x/week= GERD.



Symptoms

Gastroesophageal Reflux Disease is Deceptively Complex

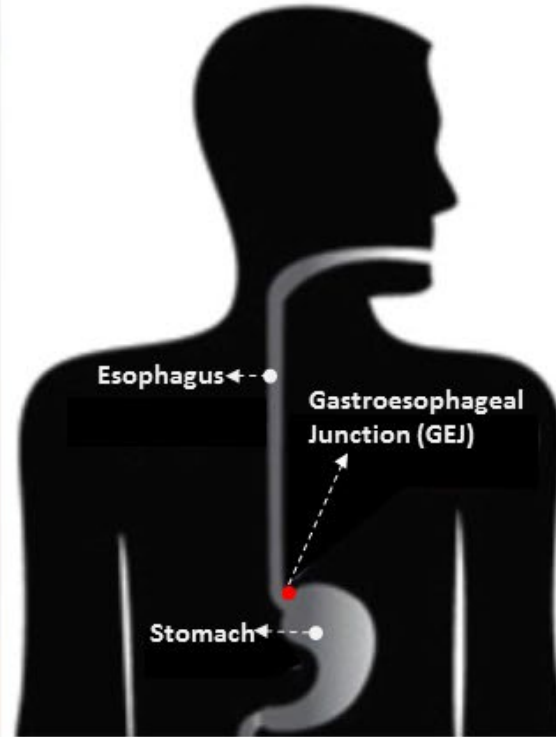
EndoGastric Solutions®

GERD is abnormally frequent or chronic reflux.

Typical GERD



- Heartburn
- Chest Pain
- Excessive Salivation
- Regurgitation
- Gas
- Bloating
- Trouble Sleeping
- Sensitive To Some Foods & Liquids



Atypical GERD



- Persistent Cough
- Chronic Sore Throat
- Frequent and/or Difficulty Swallowing
- Asthma
- Hoarseness
- Excessive Throat Clearing
- Bad Breath
- Dental Erosions
- Gum Disease
- Ear & Nose Discomfort

Acid reflux occurs when stomach contents back up, or reflux, into the esophagus.

Risk factors/contributing factors

- Relaxation of the LES:
 - Certain foods/chemicals such as: caffeine, chocolate, alcohol, peppermint, smoking, certain hormones (such as those in pregnancy), some medications
- Acidic foods because once refluxed are irritating to the esophagus
 - Tomato, citrus and other acidic fruits, spicy foods, high fat content foods

Foods that Trigger Heartburn

Source: American College of Gastroenterology



Coffee



Greasy foods



Chocolate



Spicy foods



Tomato products



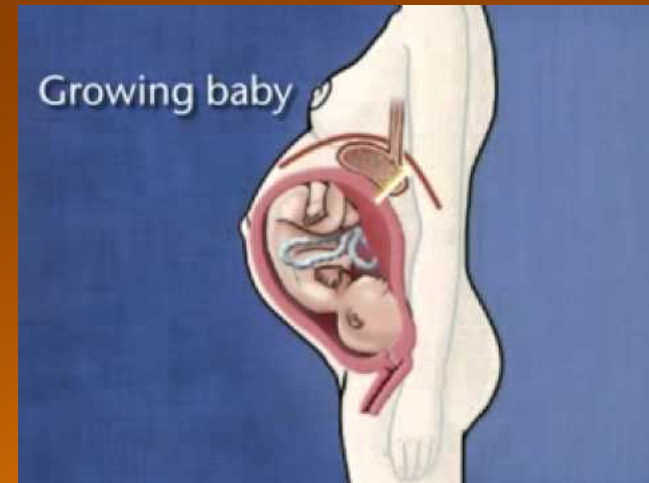
Peppermint



Alcoholic beverages

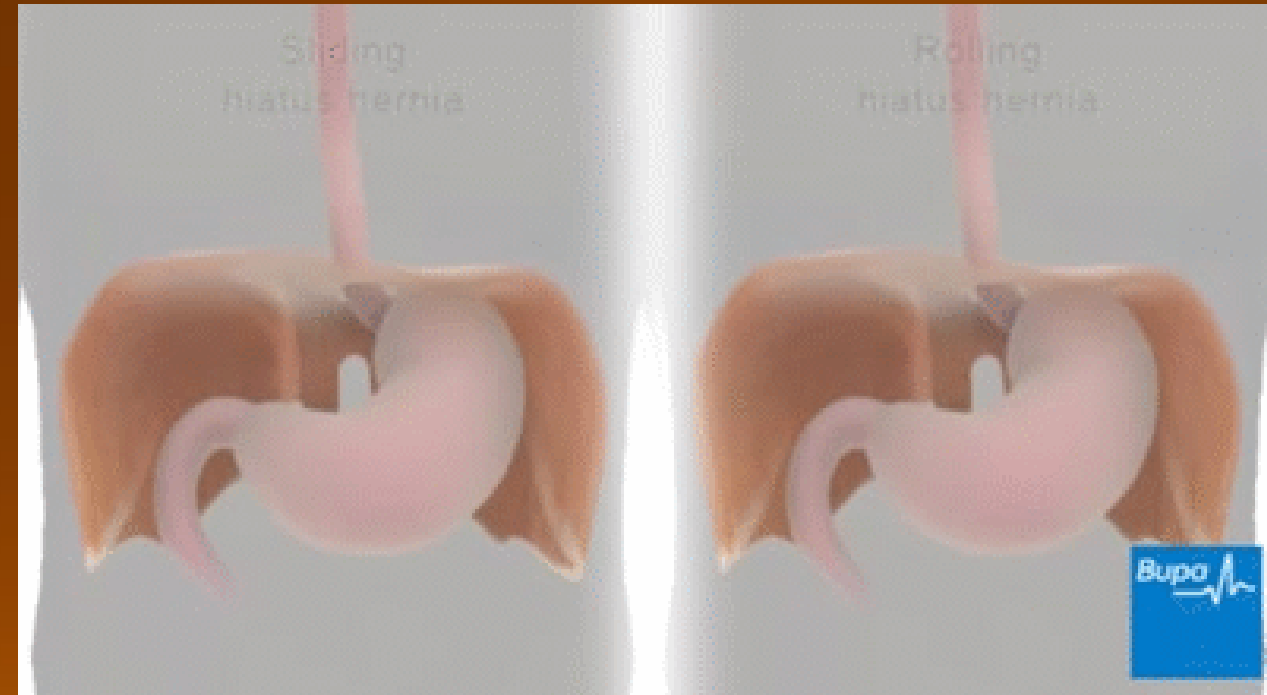
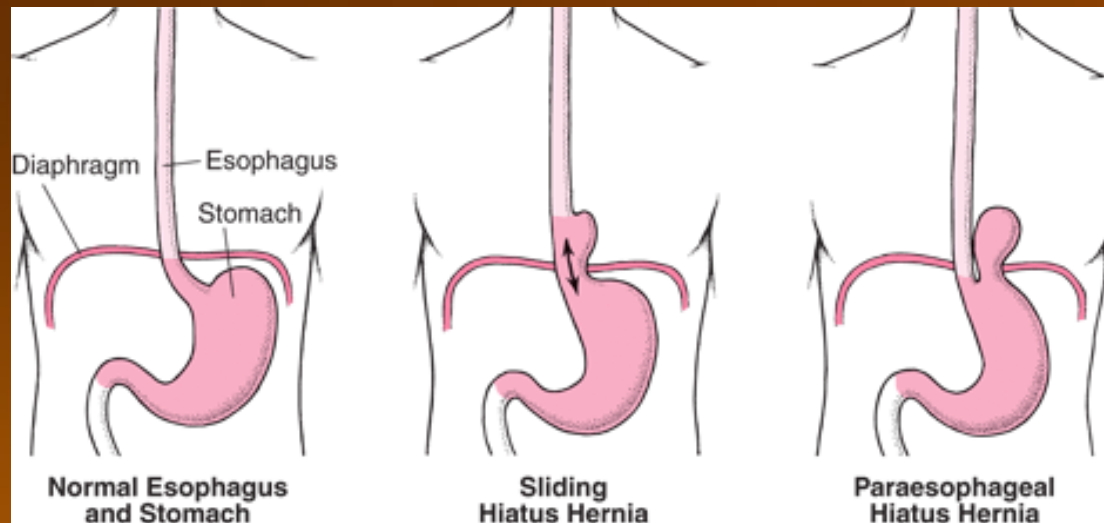
Risk factors/contributing factors

- Increased intra-abdominal pressure:
 - Overeating, pregnancy, obesity, delayed gastric emptying, positional/gravity (lying flat or being upside down), carbonated beverages, tight clothing around the chest/upper abdomen



Risk factors/contributing factors

- Hiatal Hernia – When the stomach pushes through the hole in the diaphragm

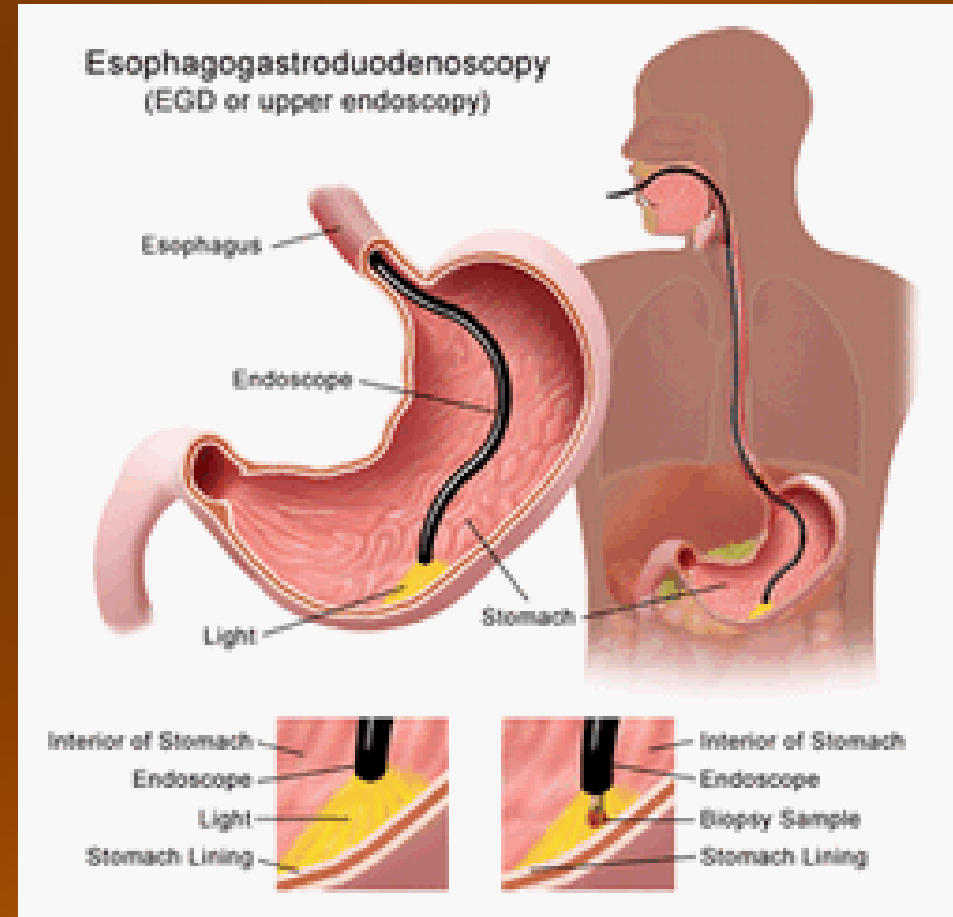
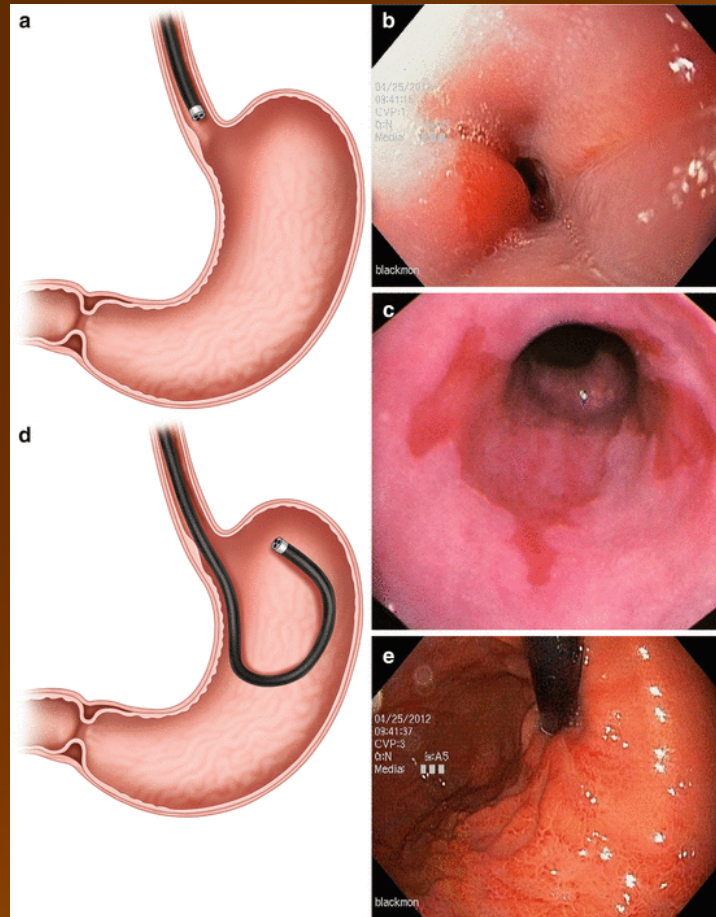
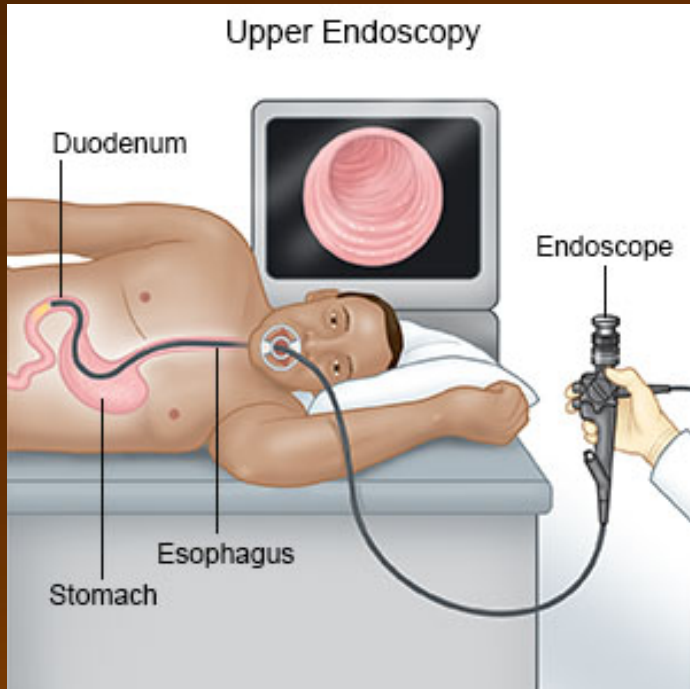


Diagnosis

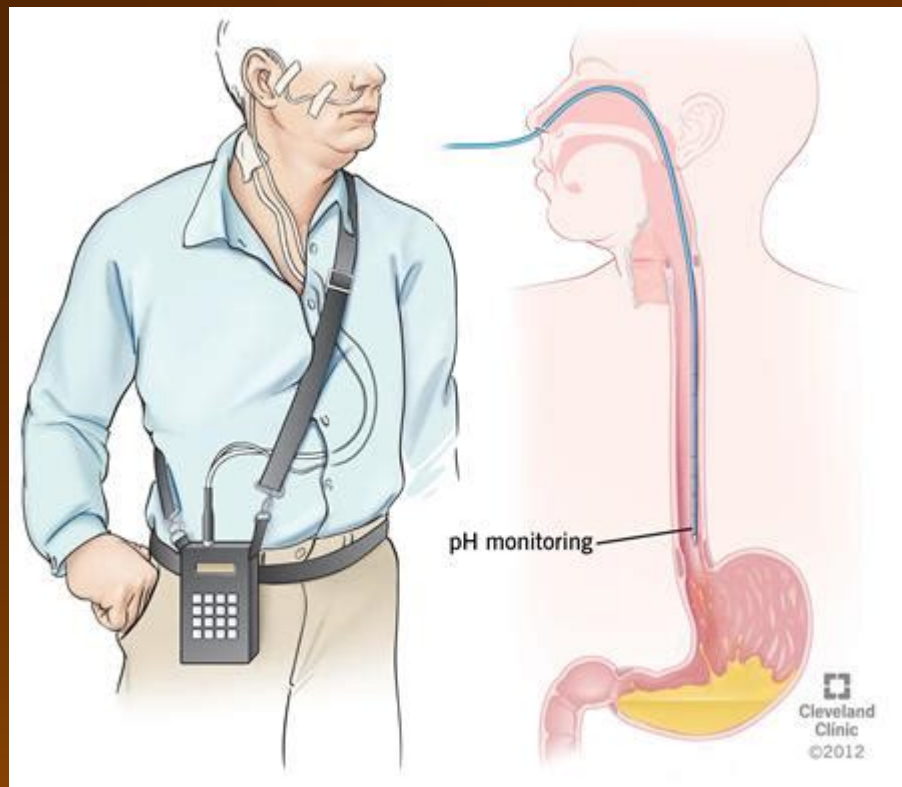
- Generally diagnosed “clinically” based on symptoms
- Upper GI Xrays/esophagogram with oral barium contrast
- Esophagogastroduodenoscopy (EGD) or upper endoscopy will be considered if persistent, recurrent, nonresponsive to treatment, associated with any red flags such as weight loss, difficulty swallowing, vomiting with blood, sometimes age, family or personal history of Barrett’s esophagus
- Ambulatory esophageal 24 hour pH monitoring



Diagnosis



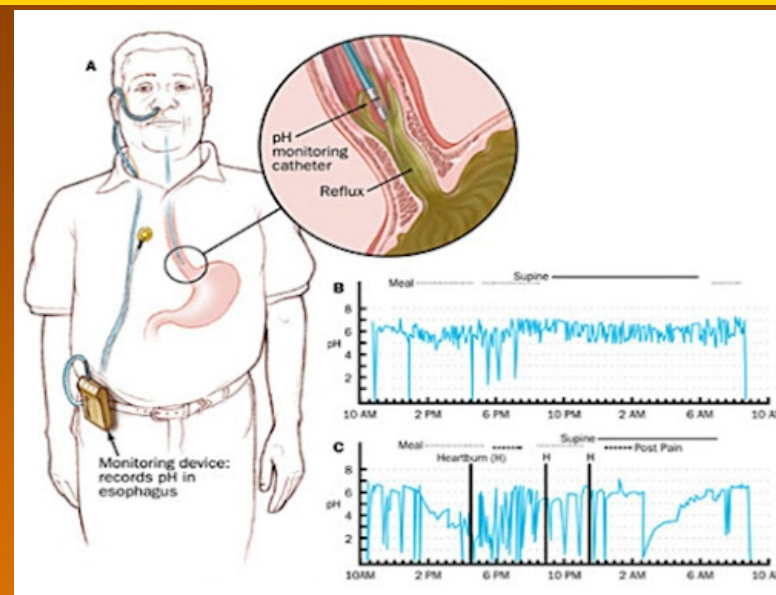
Diagnosis



What is Bravo pH testing?



- Bravo pH testing monitors the presence or absence of reflux of acid in the esophagus.
 - Measures acid exposure in the esophagus or the food tube.
 - Counts the number of reflux episodes you may have
 - Allows for us to measure whether or not your symptoms are related to reflux



Possible complications – The GERD, the bad and the ugly

- Erosive esophagitis – Inflammation and breakdown of esophageal tissue
- Esophageal ulcers – Breakdown of the tissue even more until deeper tissue is exposed
- Esophageal strictures – Scar tissue forms and causes a tight area, may need dilation
- Barrett's esophagus – Rarely can lead to cancer
- Chronic cough/laryngitis due to vocal cord swelling
- Aspiration with/without pneumonia – Refluxed contents enter lungs

Esophagitis/esophageal ulcers

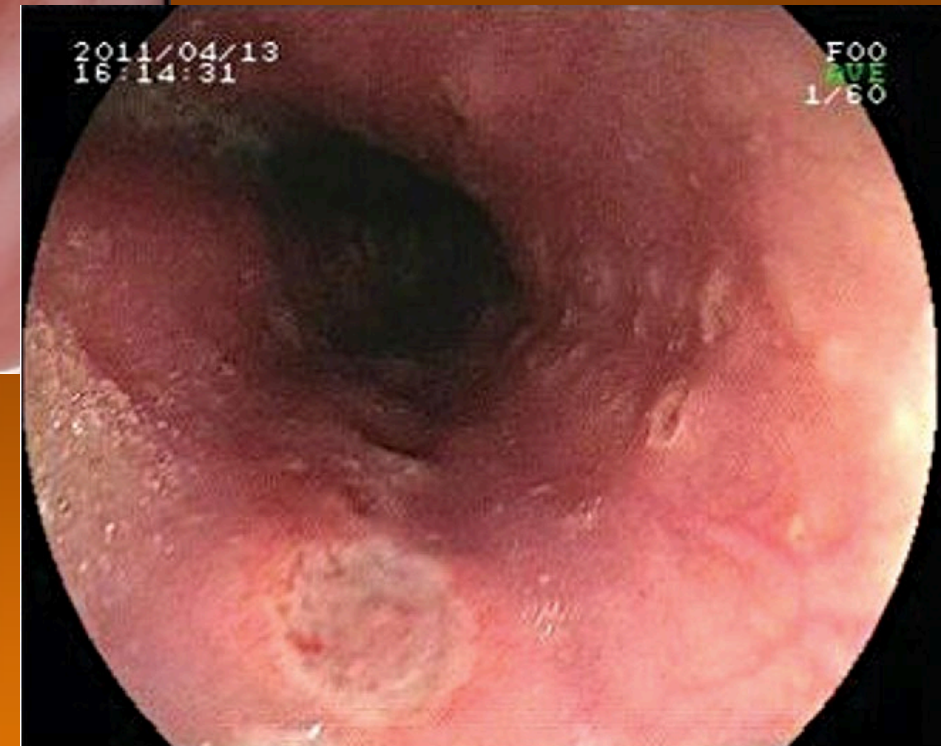
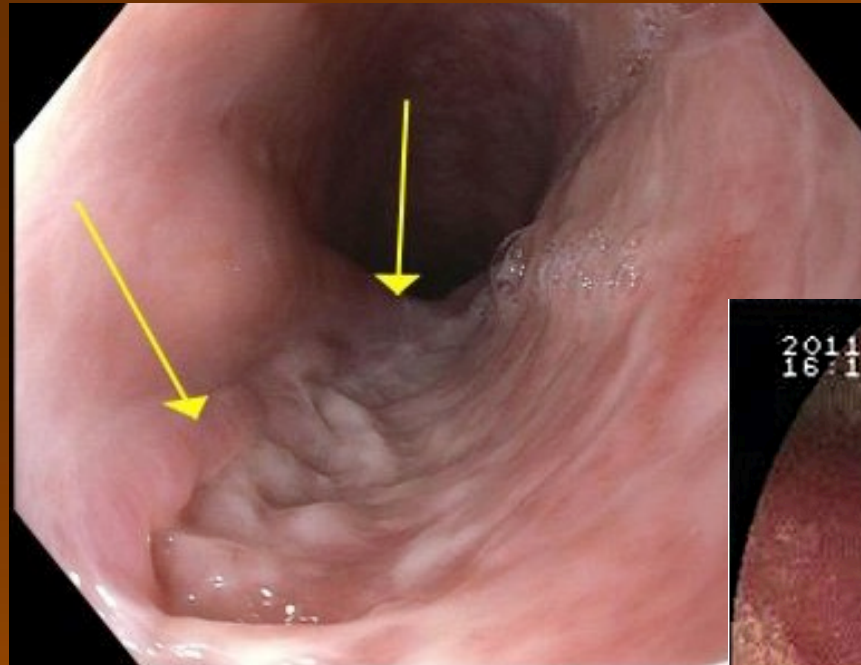
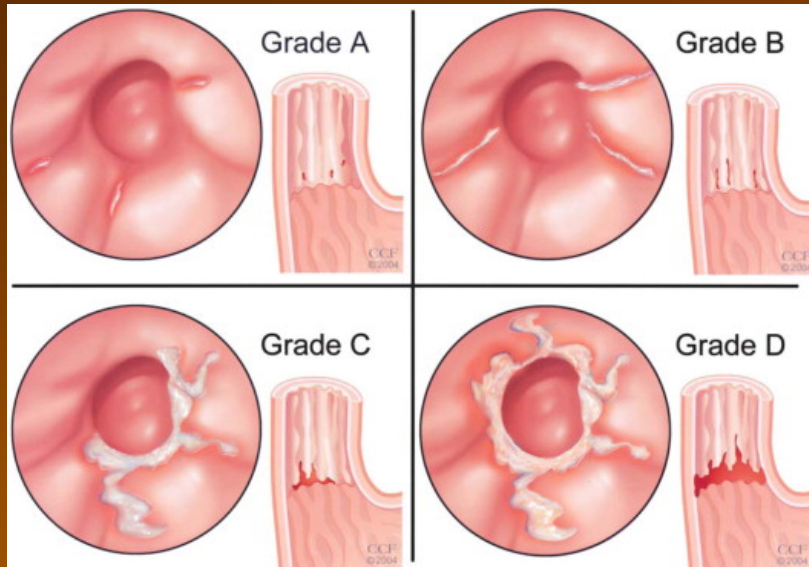
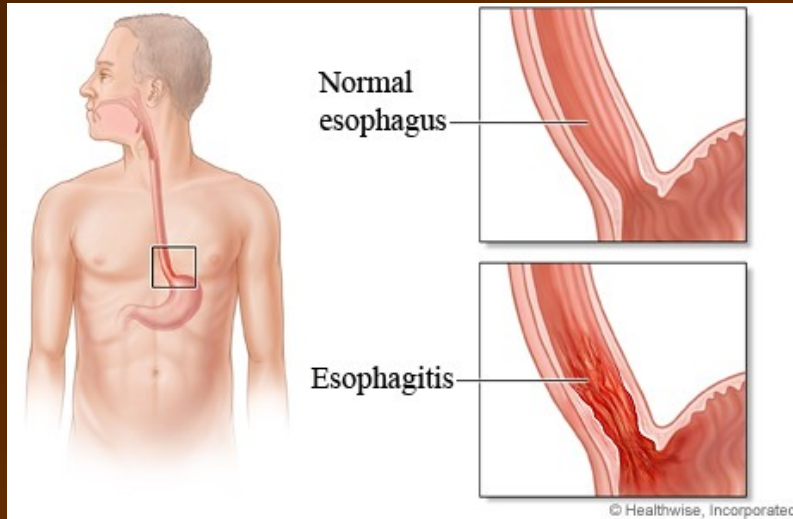
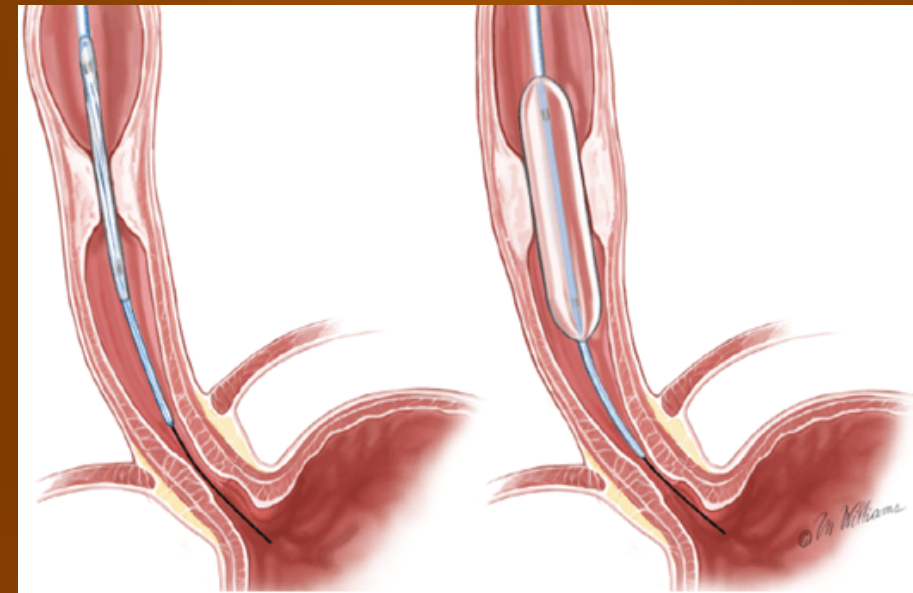
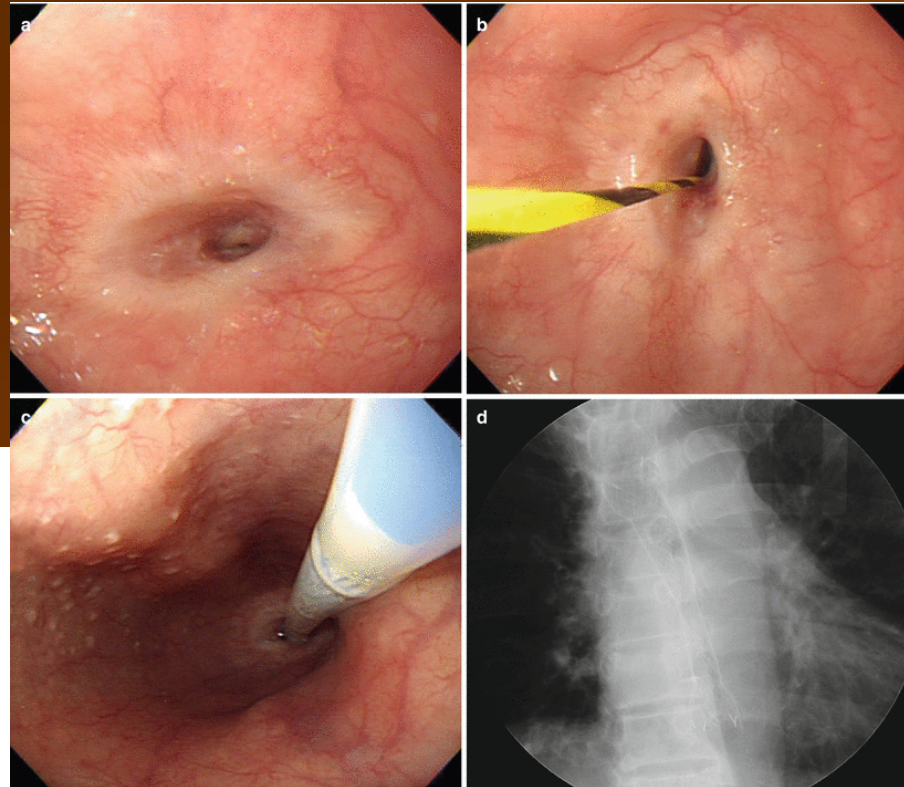
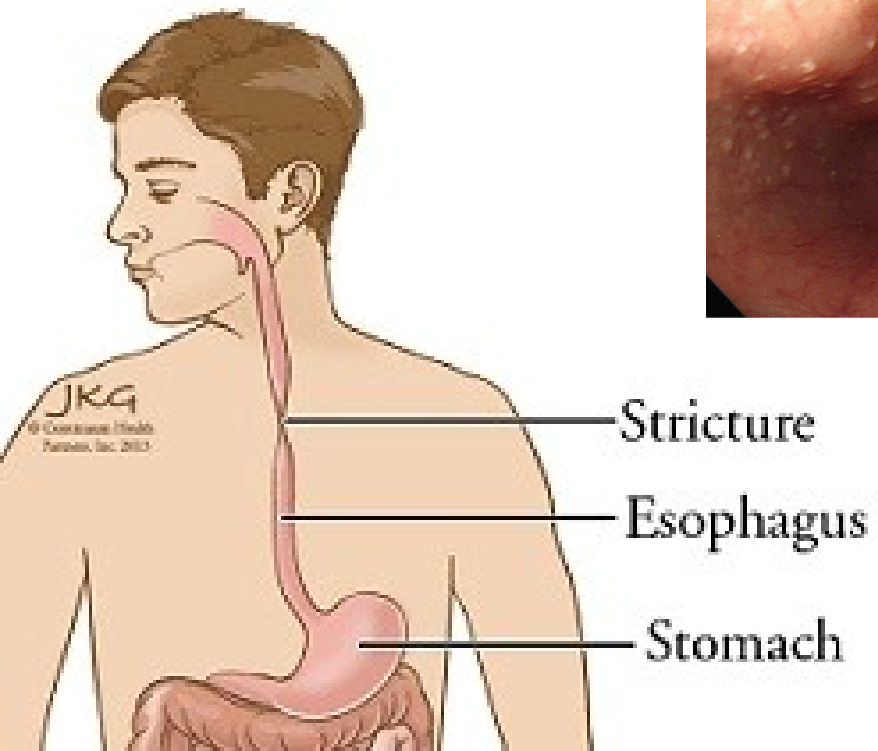


Figure 1. Esophageal ulcers at 30th cm.

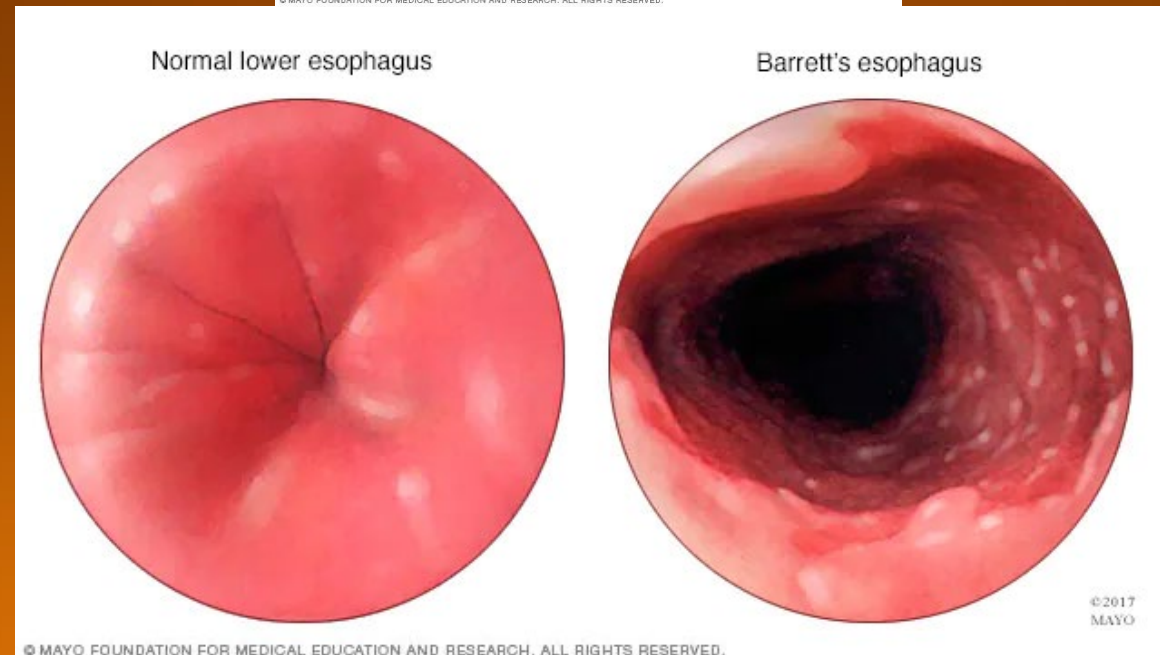
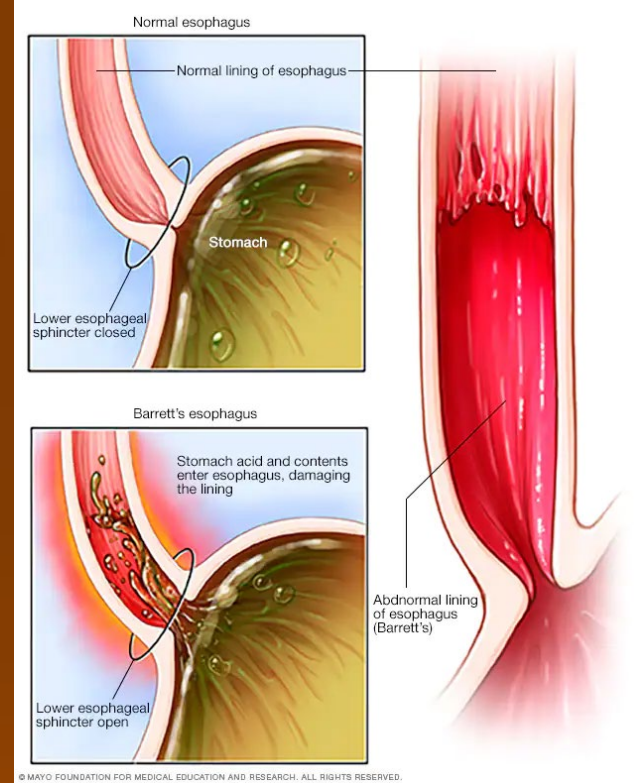
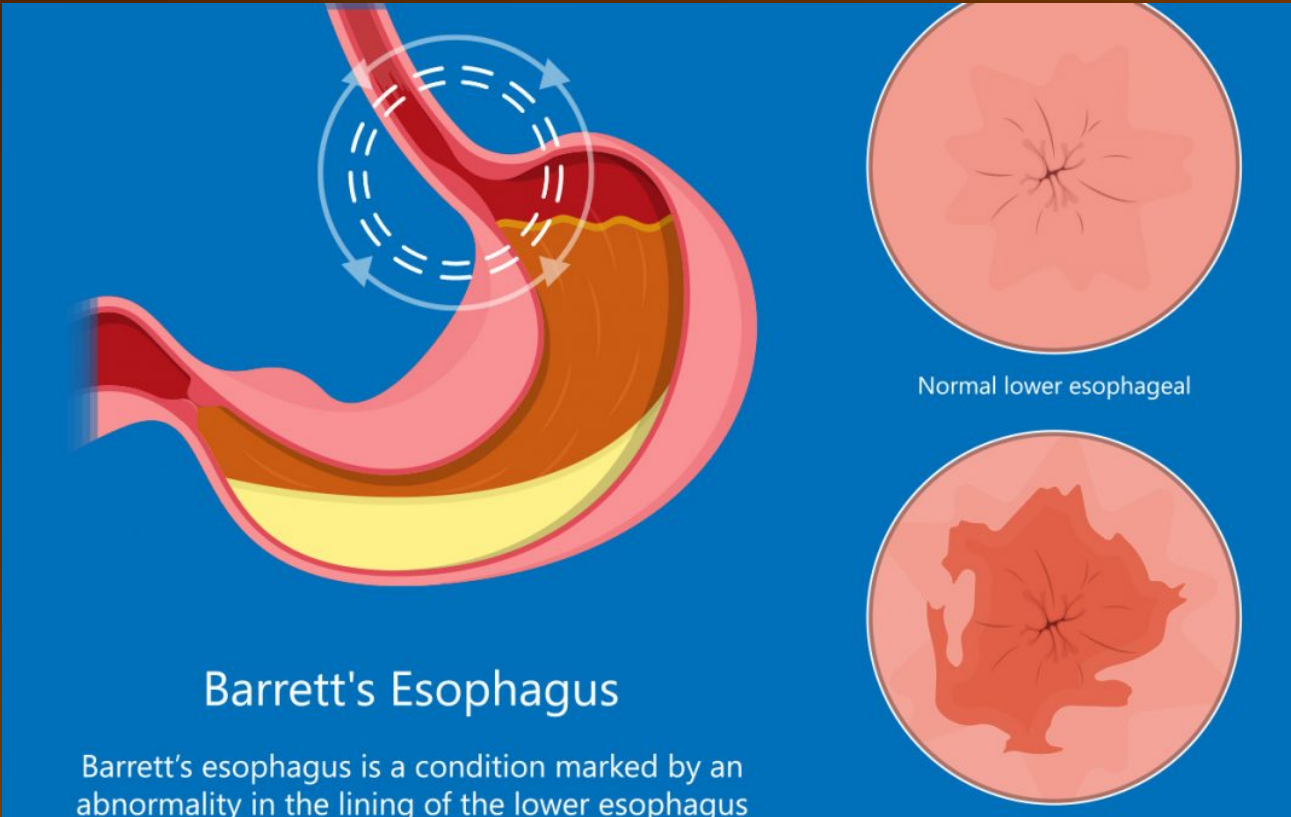
Strictures



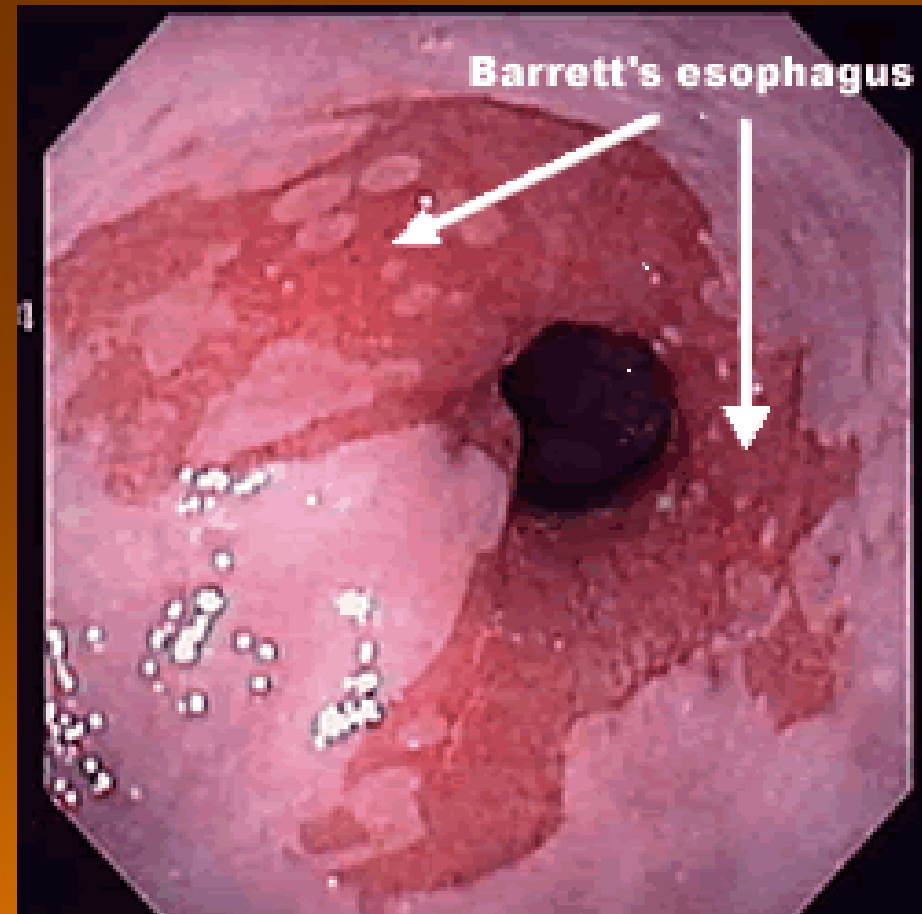
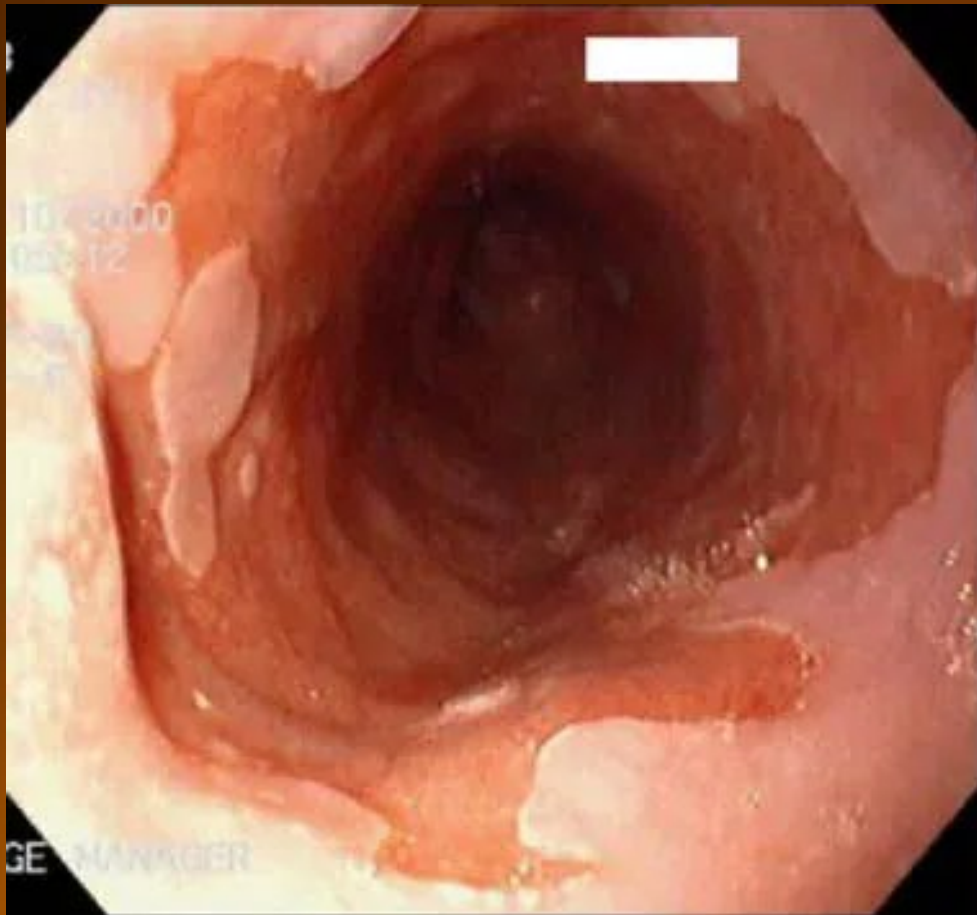
Source: D. J. Sugarbaker, R. Bueno, Y. L. Colson, M. T. Jaklitsch, M. J. Krasna, S. J. Mentzer, M. Williams, A. Adams: *Adult Chest Surgery*, 2nd Edition: www.accesssurgery.com
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Barrett's Esophagus



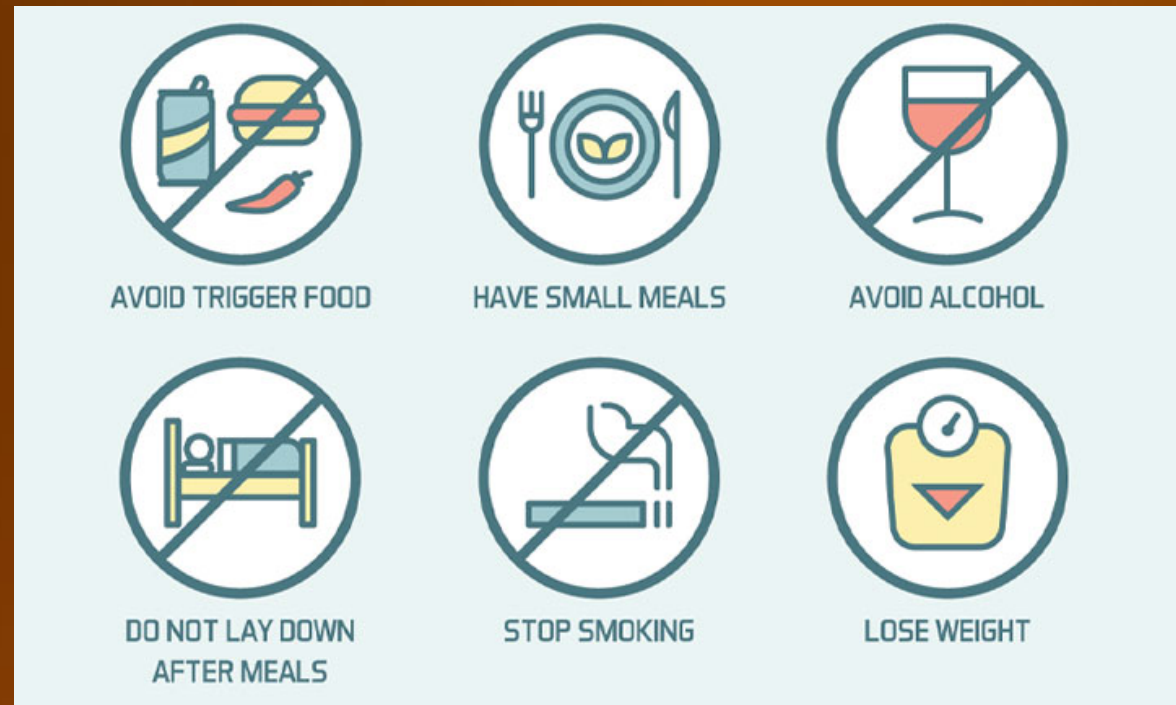
Barrett's Esophagus



Management

- Start with lifestyle changes

- Eat smaller meals/avoid over-eating
- Stay upright after eating at least 2-3 hours
- Avoid late-night snacks
- Maintain a healthy weight
 - Consider weight loss especially if recent weight gain
- Sleep with head of bed elevated – DOES NOT MEAN MORE PILLOWS
- Minimize dietary triggers – as mentioned earlier. Link on final page with GERD diet recommendations
- Avoid tight-fitting clothing around the midsection/lower chest
- Do not smoke
- Avoid alcohol
- Don't be pregnant.



Management

- Lifestyle changes.... FOREVER? Maybe, maybe not.



Medications

Antacids

- Such as Tums, Alka-Seltzer, Milk of Magnesia, Maalox, Mylanta, Rolaids, Pepto-Bismol.
- Help to neutralize acid in the stomach.
- Work FAST within 5-10 minutes but may wear off after 30-60 minutes.
- Can cause rebound acid
- Readily available OTC
- Minimal side effects –although you CAN take too many



Medications

- Sodium Alginate – Helps to form a layer on top of the acid to keep it from splashing up, also OTC
- Sucralfate (aluminum sucrose sulfate) or Carafate is a surface coating agent that is available by prescription only.



Medications

Histamine 2 Receptor Blockers (H₂RAs)

- Such as Pepcid (Famotidine) and Tagamet (Cimetadine)
- Zantac (ranitidine) was pulled from the market
- Helps to decrease production of acid in the stomach
- Works in ~60 minutes
- Can last 12 hours
- Available over the counter
- Body can develop immunity to the medication



Medications

Proton Pump Inhibitors

- Such as Prilosec (omeprazole), Nexium (esomeprazole), Prevacid (lansoprazole) available over the counter
- Prescription: Protonix, Aciphex, Dexilant, Kapidex, Others
- Helps to decrease/suppress production of acid in the stomach
- Takes time to work, generally starts working in 1-4 days but very powerful
- Available over the counter and prescription
- Multiple potential side effects, especially with prolonged use



Proton Pump Inhibitors

CORE
IM

What are the adverse effects of PPIs?

Malabsorption

- Vitamin B12 deficiency**
Just 20 mg of omeprazole may decrease B12 absorption by 3-4 fold!
- Hypomagnesemia**
Keep an eye on Mg in patients at risk for arrhythmia or hypocalcemia.
- Osteoporosis**
Mechanism is unclear but may be due to impaired calcium absorption +/- direct osteoclast inhibition.

Infection

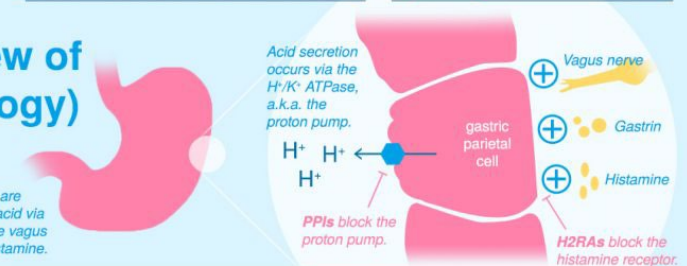
- C. difficile colitis**
Thought to be due to loss of the protective effect of gastric acid leading to alterations of the gut microbiota.

Misc

- CKD & Dementia**
These associations have been found in several observational studies. Overall, the evidence is weak.

(A Review of Physiology)

Figure 1. Gastric parietal cells are stimulated to secrete acid via three mechanisms: the vagus nerve, gastrin, and histamine.

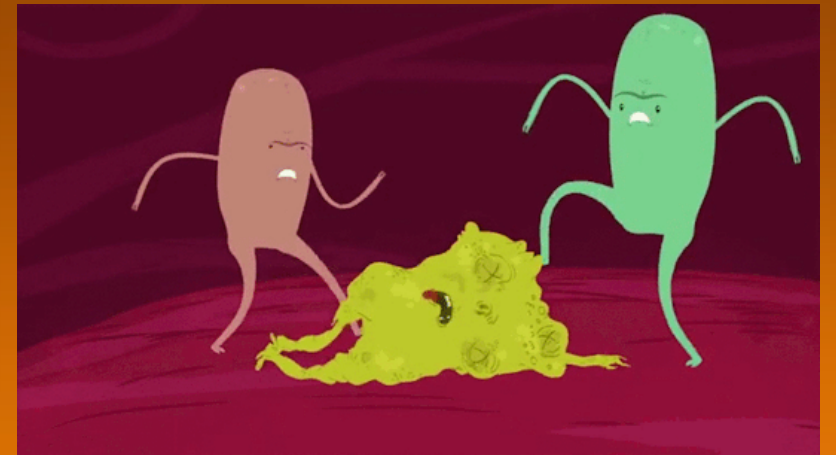


Prescribing tips:

- 1** Start with a short duration (2 to 4 weeks) of PPIs and set up close followup.
- 2** Prescribe fast-acting "rescue" meds, like aluminum hydroxide, magnesium hydroxide, and calcium carbonate.
- 3** If symptoms are mild consider starting histamine receptor blockers like ranitidine or famotidine in lieu of PPI.

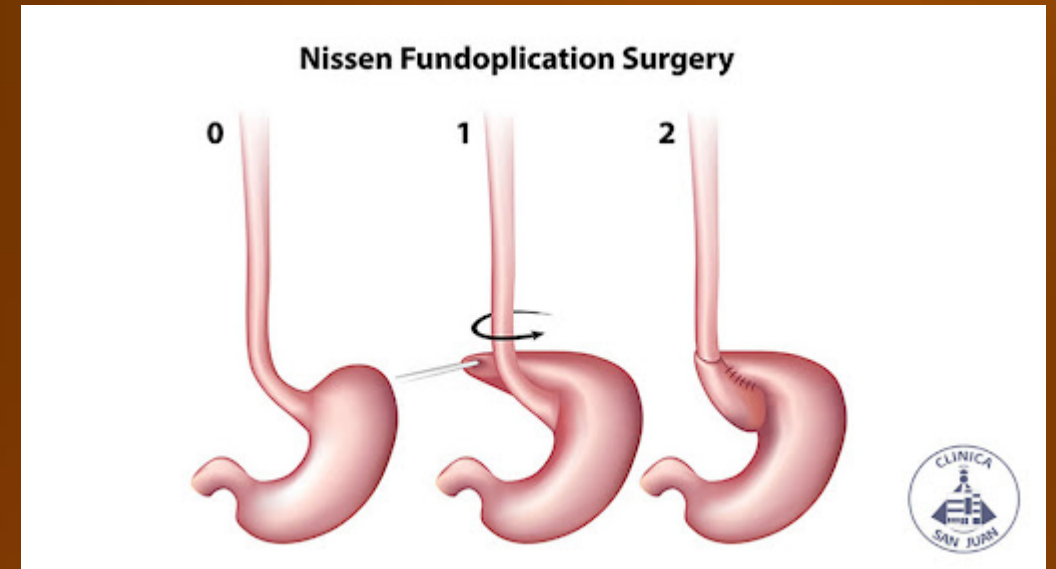
Natural alternative options

- Sodium bicarbonate (baking soda and water)
- Low fat or nonfat milk or yogurt
- Papaya Enzyme or Bromelain
- Ginger
- Slippery elm
- Aloe Vera
- Probiotics can help overall digestive health



Super severe cases – Possible surgery

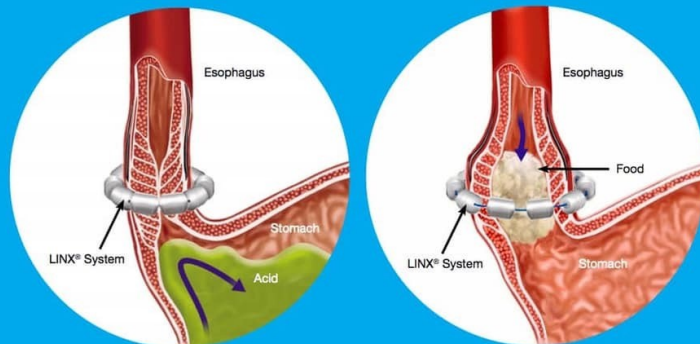
- Nissen fundoplication
- Hiatal Hernia repair
- New possible surgical device called the LINX??!!



LINX® Reflux Management System

Stop Reflux At Its Source*

The LINX Reflux Management System is a small, flexible band of magnets enclosed in titanium beads. The magnetic attraction between the beads helps keep the weak lower esophageal sphincter closed to prevent reflux. Swallowing forces temporarily break the magnetic bond to allow food and liquid to pass into the stomach.

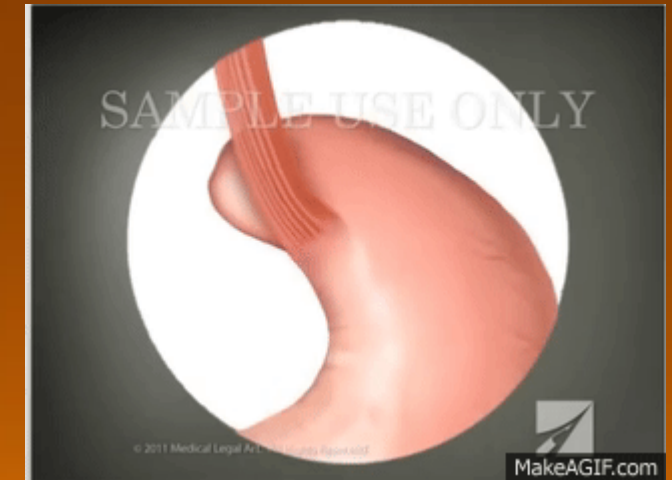


The LINX System helps keep the lower esophageal sphincter closed to prevent reflux.

The LINX System expands temporarily to allow for normal swallowing.



REFLUX RELIEF AWAITS.



Final Thoughts

- GERD is very common and can be miserable!
- But manageable and usually transient.
- If your symptoms are increasing in frequency, are worsening, or you are requiring more than 2 weeks of over the counter treatment

****TALK TO YOUR MEDICAL PROVIDER****



Thanks for letting my nerd out with my GERD out.

- These two videos are GREAT resources if you'd like to learn more about the upper digestive tract and GERD
- TED-Ed "How your digestive system works" <https://youtu.be/Og5xAdC8EUI>
- TED-Ed "What causes heartburn" <https://youtu.be/jP-gADowMOk>

GERD diet links:

- <https://www.gastroconsa.com/acid-reflux-diet-8-foods-to-eat-avoid/>
- <https://www.hopkinsmedicine.org/health/wellness-and-prevention/gerd-diet-foods-that-help-with-acid-reflux-heartburn>