

Digestive Disorders

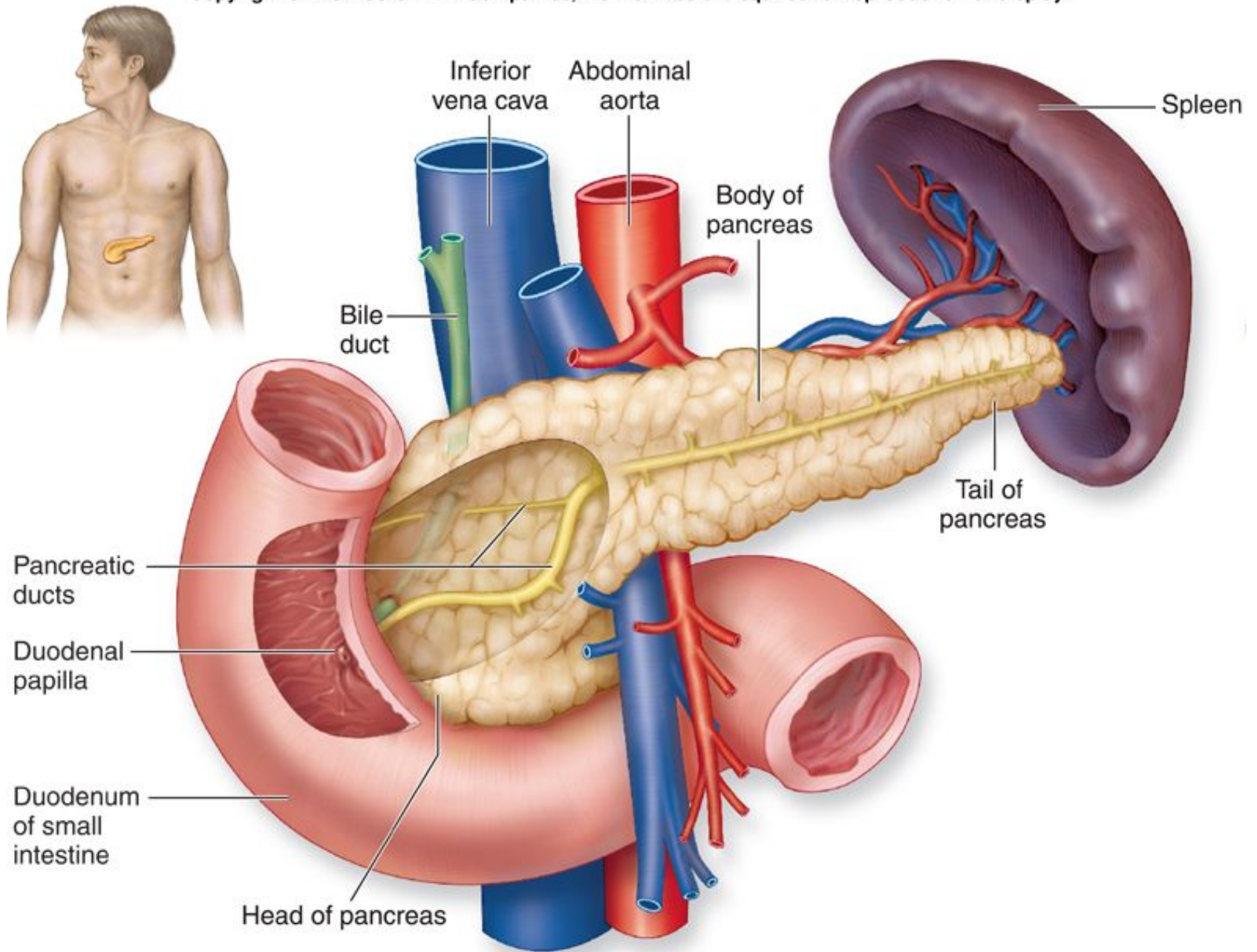
Lesson 2

Constipation

- Infrequent bowel movements
- Stools are dry, small and difficult to eliminate
- Can be caused by
 - inadequate water intake
 - Low fibre intake (what is fibre?)
 - Lack of physical activity

Disorders of Accessory Organs

- Hepatitis A, B and C: inflammation of liver
 - Caused by 3 different viruses
 - Hepatitis A: drinking water (vaccine)
 - Hepatitis B: sexual contact (vaccine)
 - Hepatitis C: sexual contact (no vaccine)
- Cirrhosis: Chronic liver condition, where scar tissue replaces healthy tissue
 - Chronic alcoholism
 - Hepatitis C

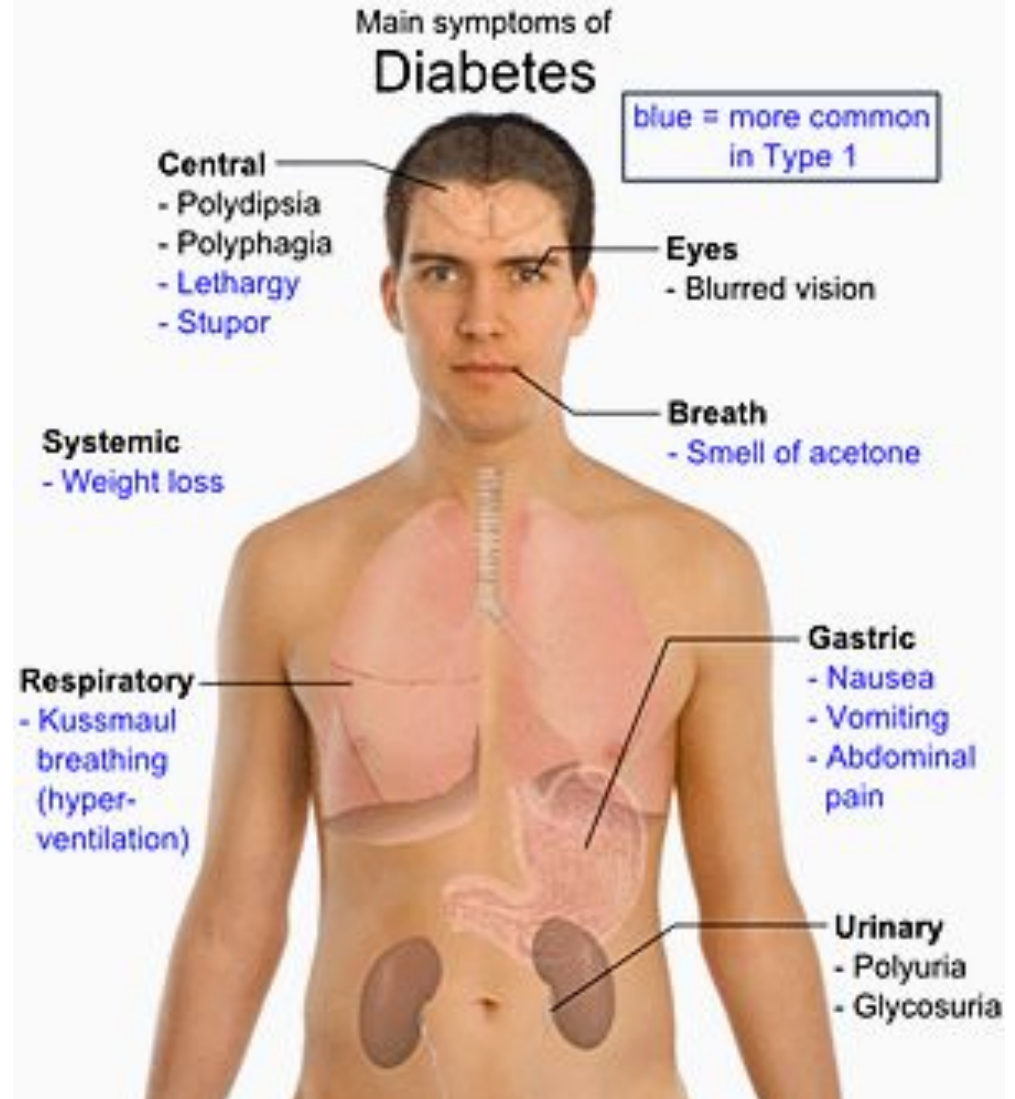


Insulin

- Released in response to elevated blood glucose
- Causes cells to become permeable to glucose
- Stimulates storage of glucose in the muscle, liver, and fat cells
 - Stored as glycogen in the muscle and liver
 - Stored as triglycerides in fat
- Glucose uptake by cells decreases concentrations in the blood

DIABETES

- Cells are unable to use glucose for energy
- It can cause blindness, kidney failure, nerve damage, and limb amputation



Type 1 Diabetes

- Also called juvenile diabetes and insulin-dependent diabetes
- Immune system produces antibodies that attack and destroy beta cells
- Must have daily insulin injections to live

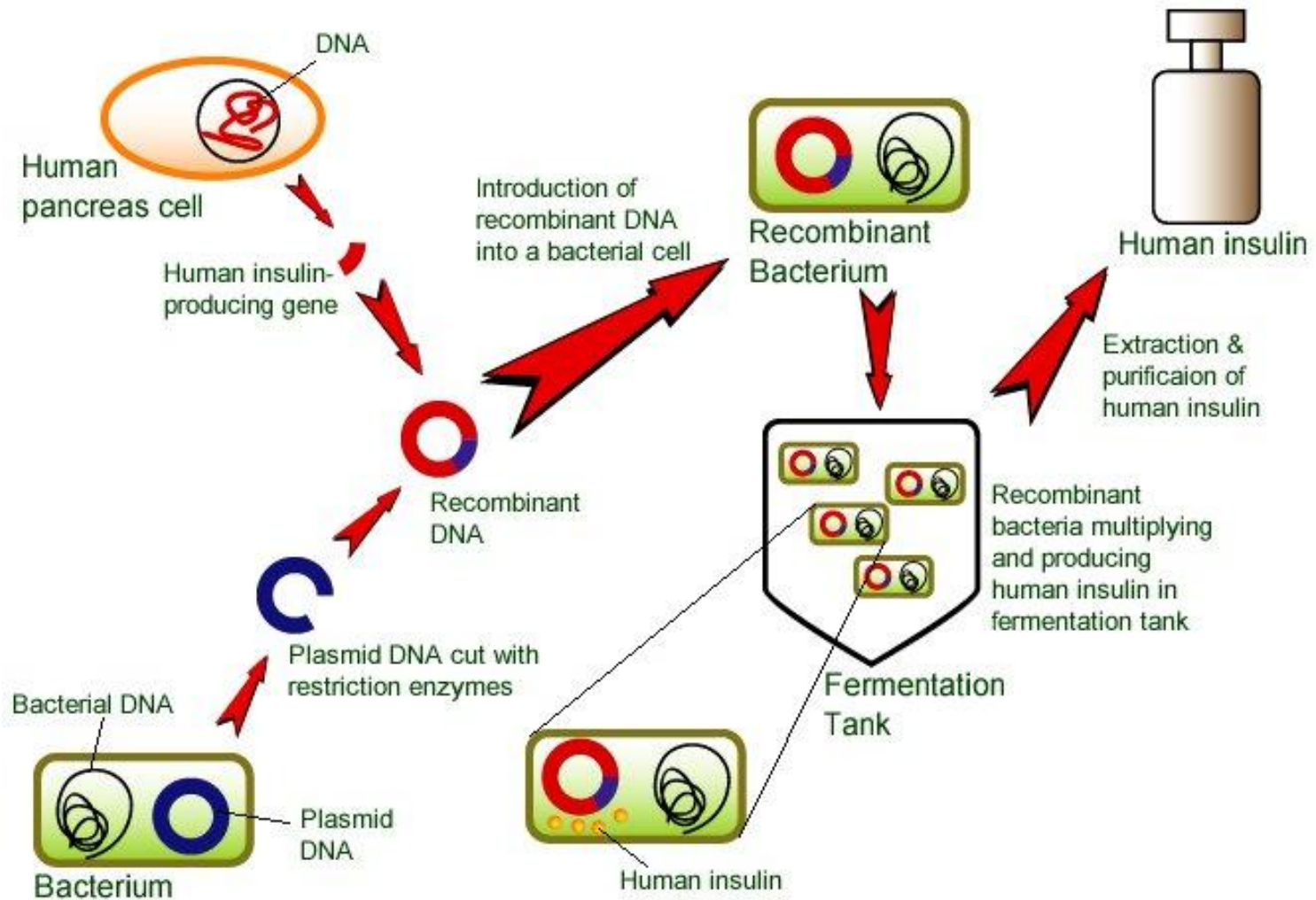
Type 2 Diabetes

- Tends to develop gradually from either:
 - Insulin receptors stop responding to insulin
 - Beta cells of pancreas produce less and less insulin over time
- Risk factors
 - Overweight
 - Diet high in refined carbohydrates
 - Belonging to certain ethno-cultural groups (Aboriginal, Hispanic)

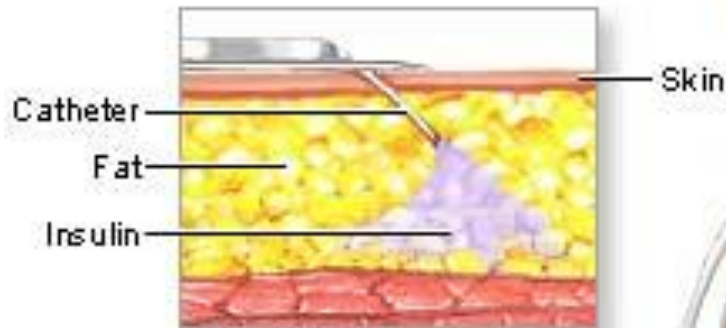
1922 Banting and Best

<http://www.youtube.com/watch?v=53pxYZW71H4>

Human Insulin Production



Timing Insulin Delivery



Dosage instructions are entered into the pump's small computer and the appropriate amount of insulin is then injected into the body in a calculated, controlled manner

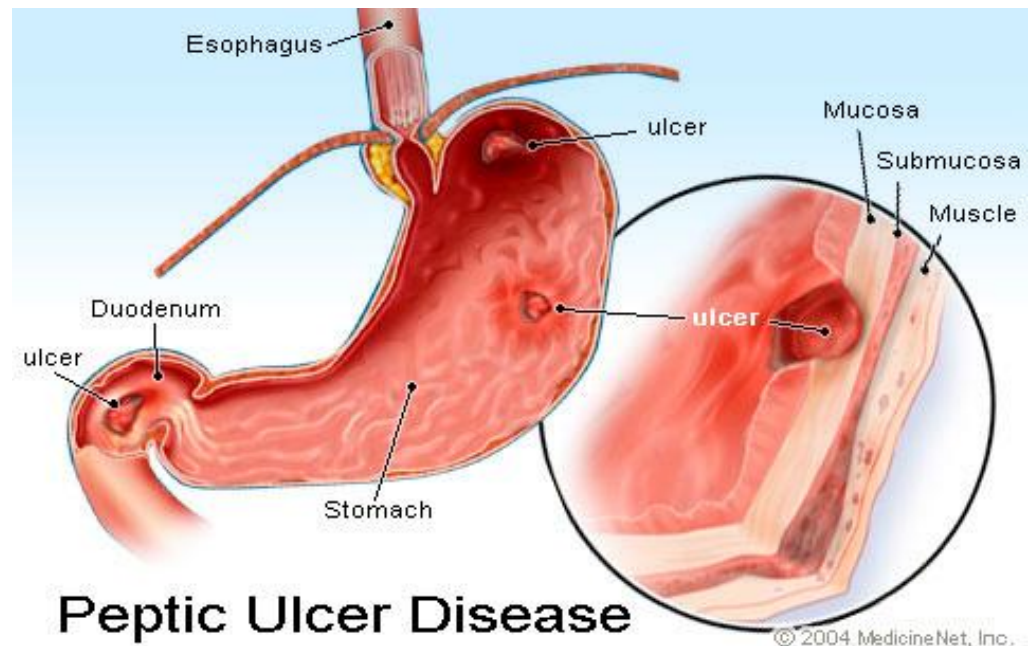
Insulin pump



Peptic Ulcers

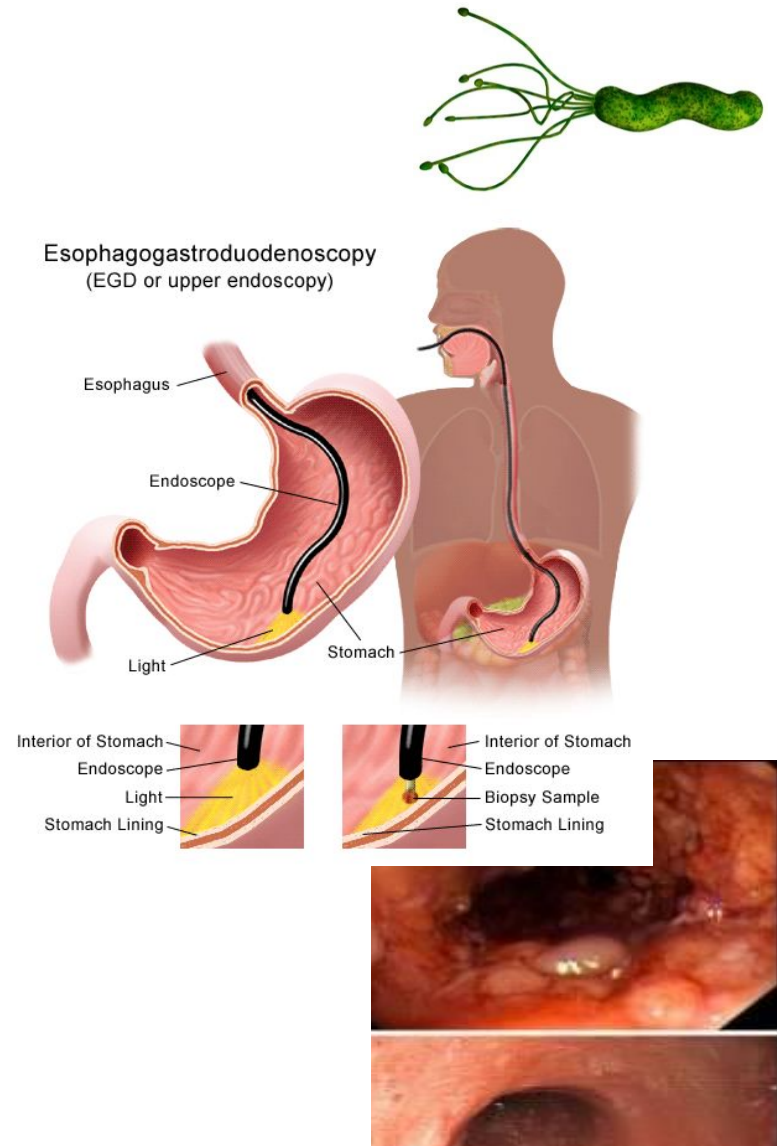
- **Description:** a **sore** in the lining of the stomach or duodenum, where hydrochloric acid and pepsin are present. The unprotected tissue comes into contact with acidic gastric juice.

- **Symptoms:** abdominal pain, bloating, nausea, and loss of appetite.



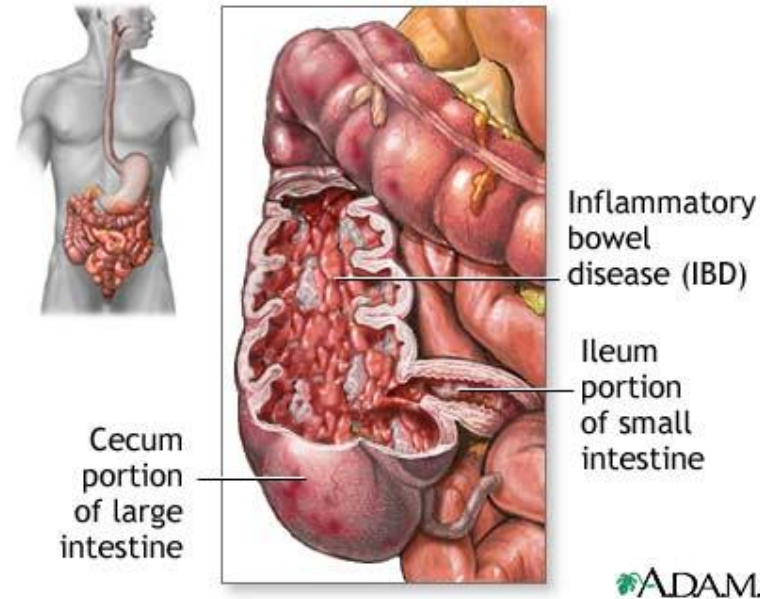
Peptic Ulcer

- **Causes:** an **acid-resistant bacterium**, *Helicobacter pylori*, attach themselves to the wall of the digestive tract and prevent that area from producing the protective mucus.
- **Treatments:** **antibiotics** that kill the bacteria, and **medications** that reduce acidity in the stomach.



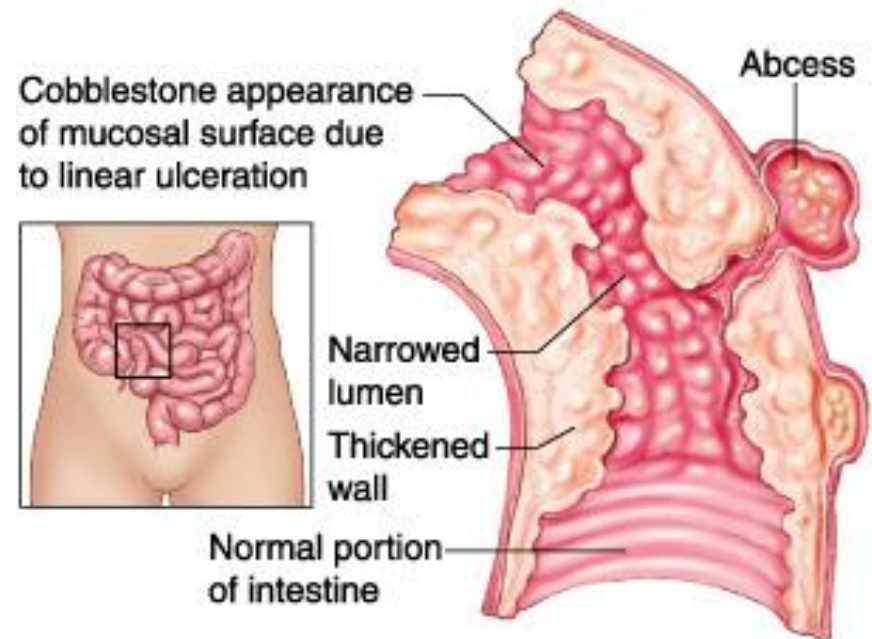
Inflammatory Bowel Disease

- A general name for a group of diseases that cause **inflammation** in the intestines.
- Prevalence is increasing in Canada over 200 000 people (1 in 160)
- Is a **chronic** disease, meaning that it is long lasting or recurrent.
- Can only be treated - **not cured** - by a special diet and by taking medication to reduce pain and inflammation



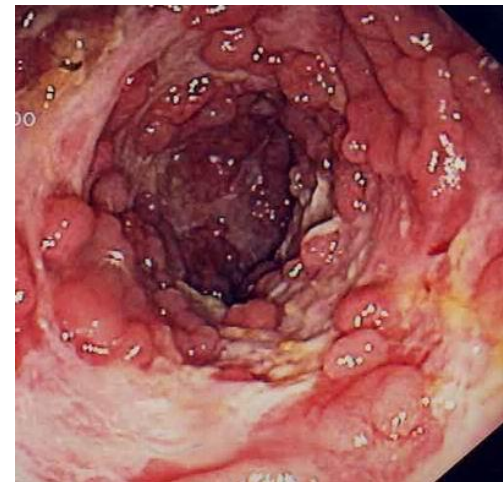
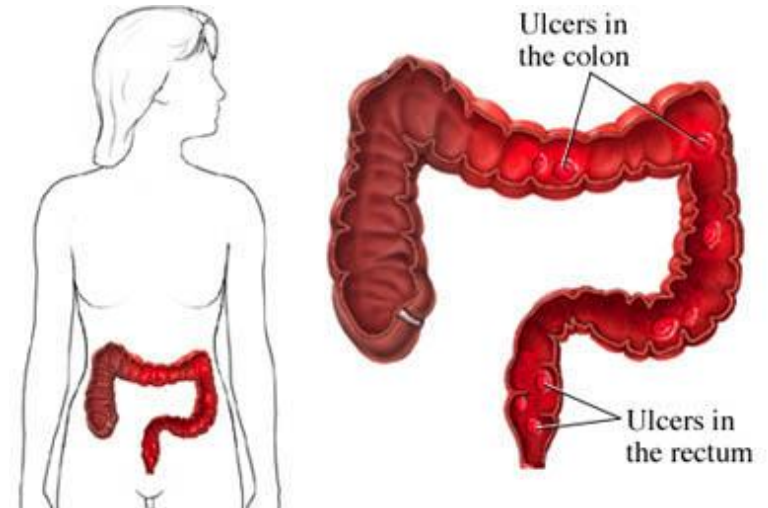
Crohn's Disease

- Can affect **any part** of the alimentary canal from the mouth to the anus.
- Children with Crohn's disease develop **thinner bones** that increase the future risk of fractures, and they experience **poor muscle development**.



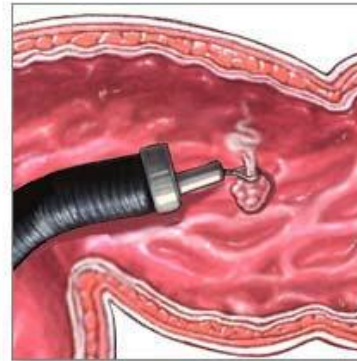
Ulcerative Colitis

- Attacks the **colon**.
- Symptoms include loose and bloody stools, cramps, and abdominal pain.
- In severe cases it may be necessary for surgeons to remove the affected part of the colon and create a new **external opening** for digestive waste.

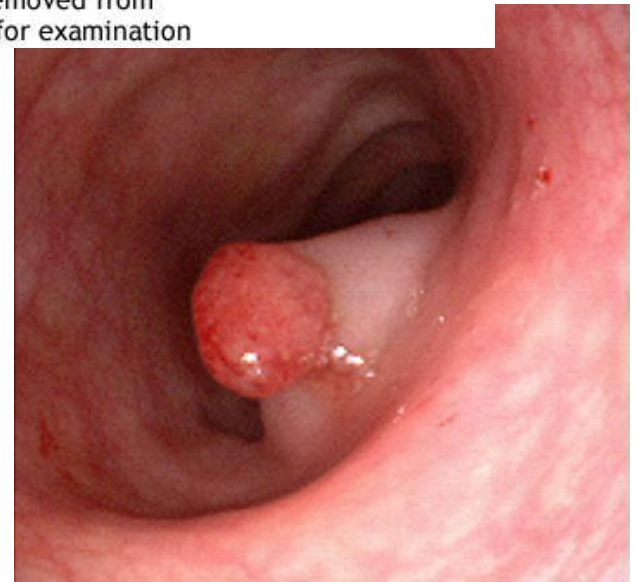


Colon Cancer

- **Description:** cancerous cells (tumours) are present in the wall of the large intestine (colon).
- **Causes:** A mix of **genetic** and **environmental** factors can cause cells in the lining of the bowel to turn cancerous.



Tissue is removed from the colon for examination



Colon Cancer

- **Symptoms:** The passage of bright red blood in the stool or a change in the frequency, consistency or thickness of stool are the most typical symptoms.
- **Treatment: resection surgery** where the diseased segment is removed and the bowel on either side of the cancer is reunited.



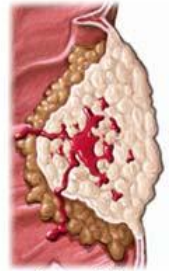
Treatment of colon cancer depends on the stage, or extent, of disease



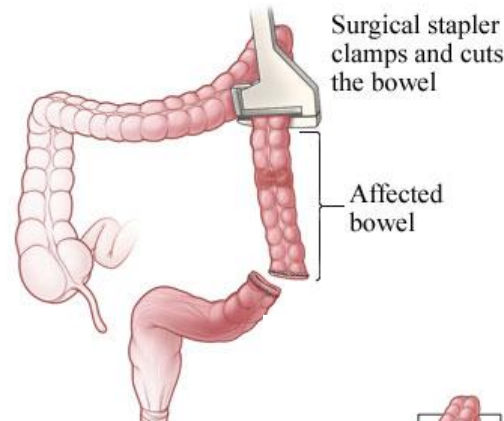
Stage I



Stage II



Stage III



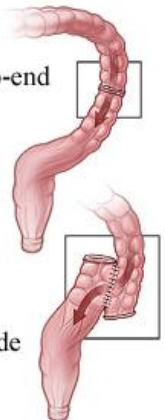
Surgical stapler clamps and cuts the bowel

Affected bowel



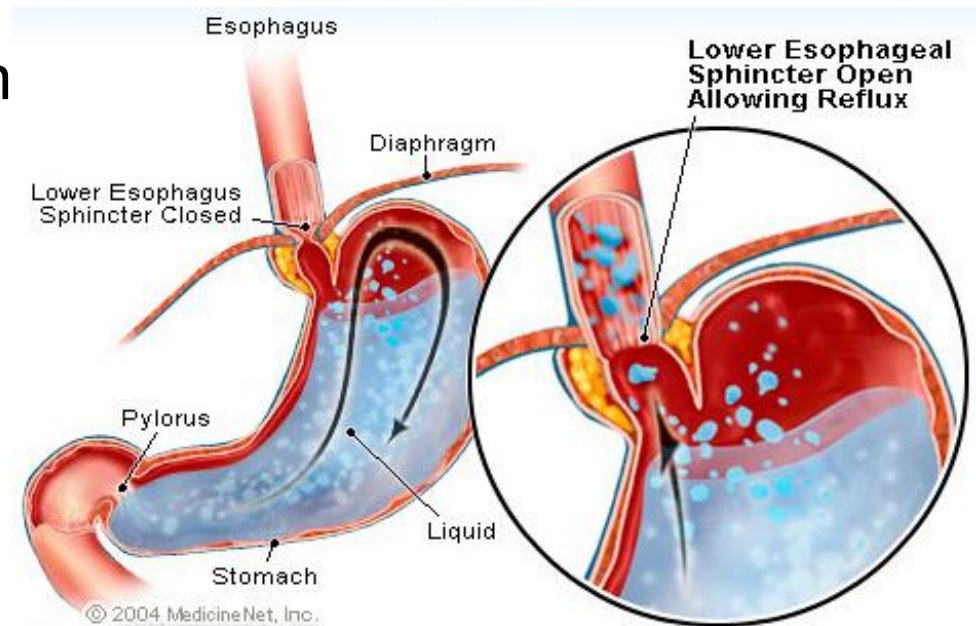
End-to-end

Side-to-side



GERD

- Gastroesophageal reflux disease (GERD) is a disorder affecting the **lower esophageal sphincter**.
- Reflux refers to a reverse flow of the stomach's contents into the esophagus.
- Most people living with GERD suffer from indigestion **heartburn** or **acid reflux**.



GERD

- **Lifestyle** and **dietary** changes to reduce the reflux and the potential to damage the esophageal lining.
- Medical treatment involves the use of **antacids** to neutralize acid in the esophagus and stomach or drugs to reduce the amount of **acid secreted** into the stomach in response to meals.
- In serious cases surgery to tighten the esophageal sphincter may be necessary



Learning Check

- Pg 422, Q 19-24
- Read Appendix article Pg 426, Q1