10.3 Digestive System Disorders
Peptic Ulcers

- Stomach or duodenum
- Pepsin and HCl
- Protective mucus weakens, tissues inflamed
- *Heliobacter pylori* bacteria prevents mucus production
- Treated with antibiotics, antacid, lifestyle changes (reduce food intake, avoid alcohol, stop smoking)
Inflammatory Bowel Disease

- Inflammation in intestines, includes Crohn’s disease and ulcerative colitis
- Treat symptoms with special diet and medication to reduce pain, inflammation
- Surgery may be needed to remove parts of colon
- Crohn’s disease: any part of digestive tract
- Ulcerative colitis: colon, loose and bloody stools
Constipation

- 3 or fewer bowel movements per week
- Dry, small stools, difficult to eliminate

Causes:
- inadequate water intake
- Poor nerve/muscle function in the bowel
- Poor diet
- Lack of physical activity

Treatment: increase fibre intake
Hepatitis

- Inflammation of liver
- Cause: virus
- 3 types
  - Hepatitis A: from contaminated drinking water
  - Hepatitis B: from sexual contact with an infected person
    - Vaccine available
  - Hepatitis C: from infected blood contact
Cirrhosis

- Non-functioning scar tissue in liver
- Cause: Hepatitis C, alcoholism
- Symptoms: fatty liver (diagnosed by a blood test)
- Treatment: liver transplant (if possible)
Gallstones

- Cholesterol in bile precipitates and forms crystals, become gallstones
- Cause: obesity, high alcohol intake, heredity
- Treatment:
  - Medication
  - Ultrasound shockwaves to disintegrate the stones
  - Gall bladder removal
- Susceptibility reduced by losing weight, increasing omega-3 fatty acid intake
Diabetes

- Body cells unable to use glucose

Causes:
- Not enough insulin in bloodstream
- Cell cannot use insulin made by pancreas

3 types:
- Insulin-producing cell destroyed by immune system
- Body not make enough insulin or unable to use insulin it makes
- Gestational: develops during pregnancy due to fluctuating hormones and insulin production

Treatment: insulin injection, diet change
Diabetes Research

- Frederick Banting and Charles Best
- Discovered insulin involved in diabetes (1922)
- Showed insulin injections prolong lives
- Produced insulin in large quantities for treatment
New technologies to treat diabetes

- **1980s**: insulin pump - inject insulin when it is most needed
- **1990s**: genetic engineering - use bacterial plasmid to manufacture human insulin (instead of pig/cattle insulin extractions)
Non-Invasive Endoscope

- Observe the lining of alimentary canal without cutting
- to locate, diagnose, remove
- ulcers, tumours, other problems
- Enter via mouth or anus
- Can attach cameras, lasers (cutting/sealing), forceps (extraction)
- Capsule endoscope for small intestine
Homework

- P.427 #1-4, 6-11, 14-16