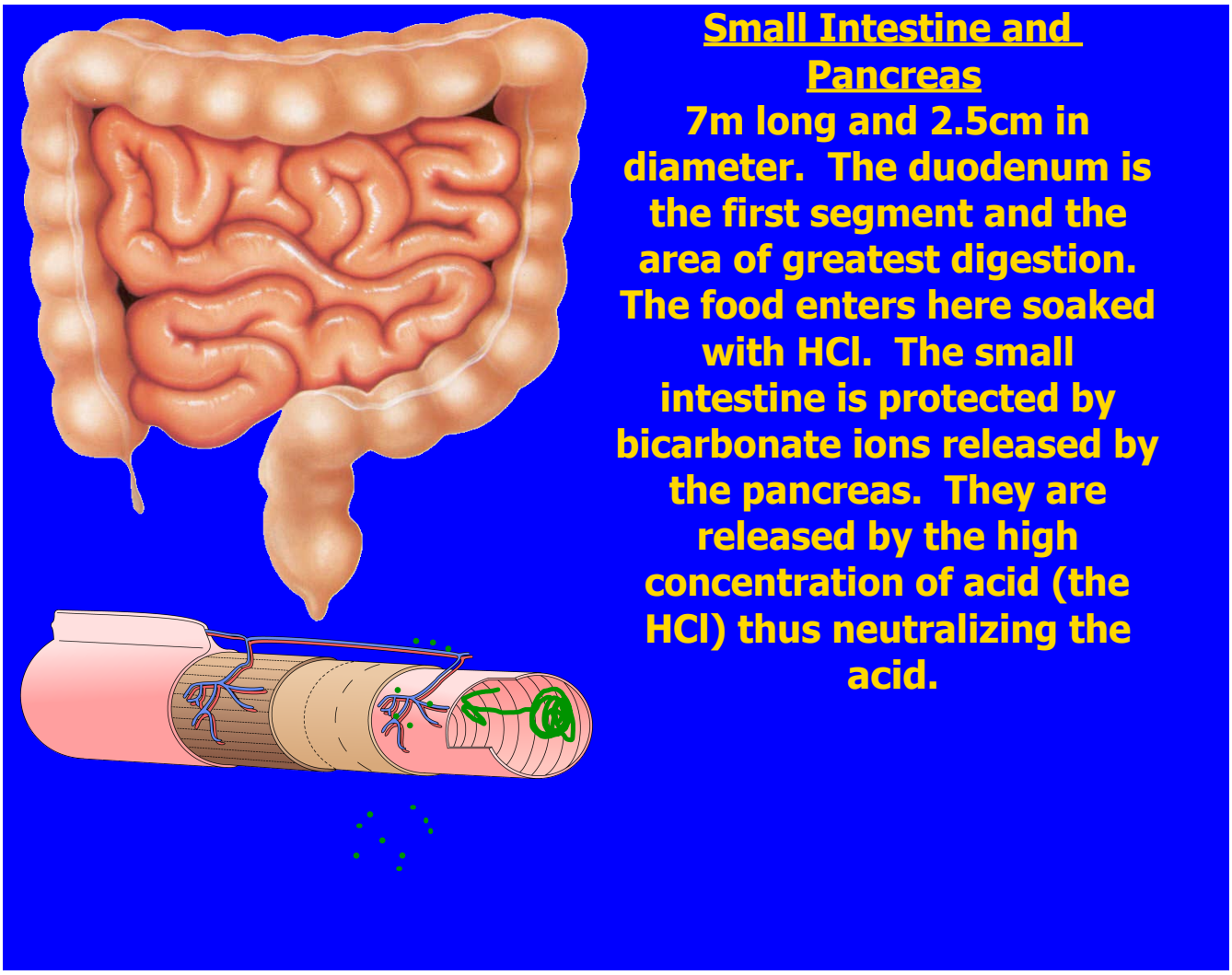
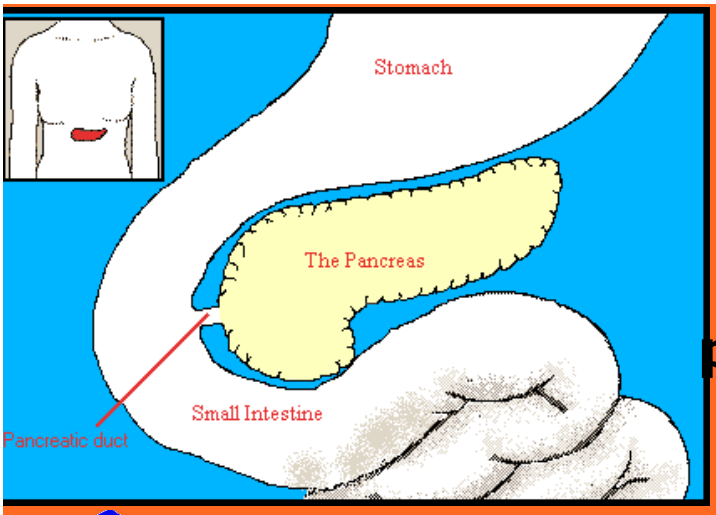
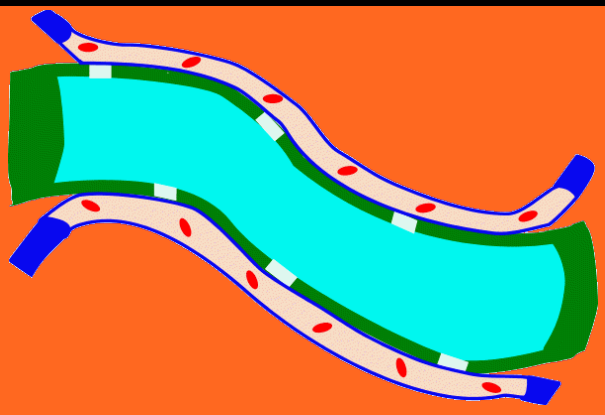

Small Intestine and Pancreas
7m long and 2.5cm in diameter. The duodenum is the first segment and the area of greatest digestion. The food enters here soaked with HCl. The small intestine is protected by bicarbonate ions released by the pancreas. They are released by the high concentration of acid (the HCl) thus neutralizing the acid.

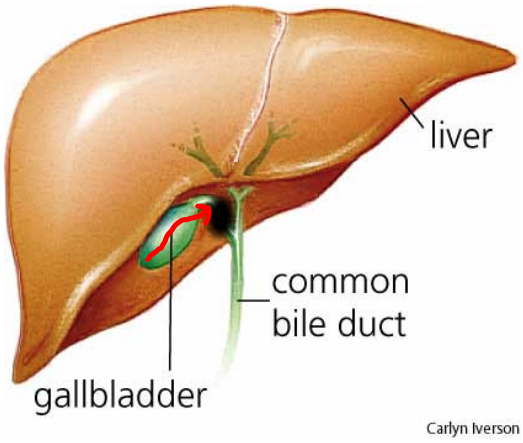
How the small intestine buffers the acidic mixture of food and liquid that enters from the stomach

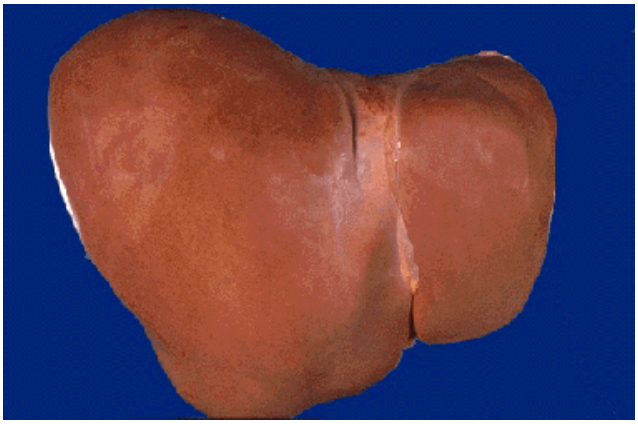
- mixture of food and liquid called chyme enter the S.I.
- it is acidic with a low pH
- this triggers the conversion of prosecretin into secretin
- secretin is released into the blood and travels to the pancreas
- the pancreas releases bicarbonate ions via the pancreatic duct
- bicarbonate ions raise the pH level protecting the S.I. from digesting itself





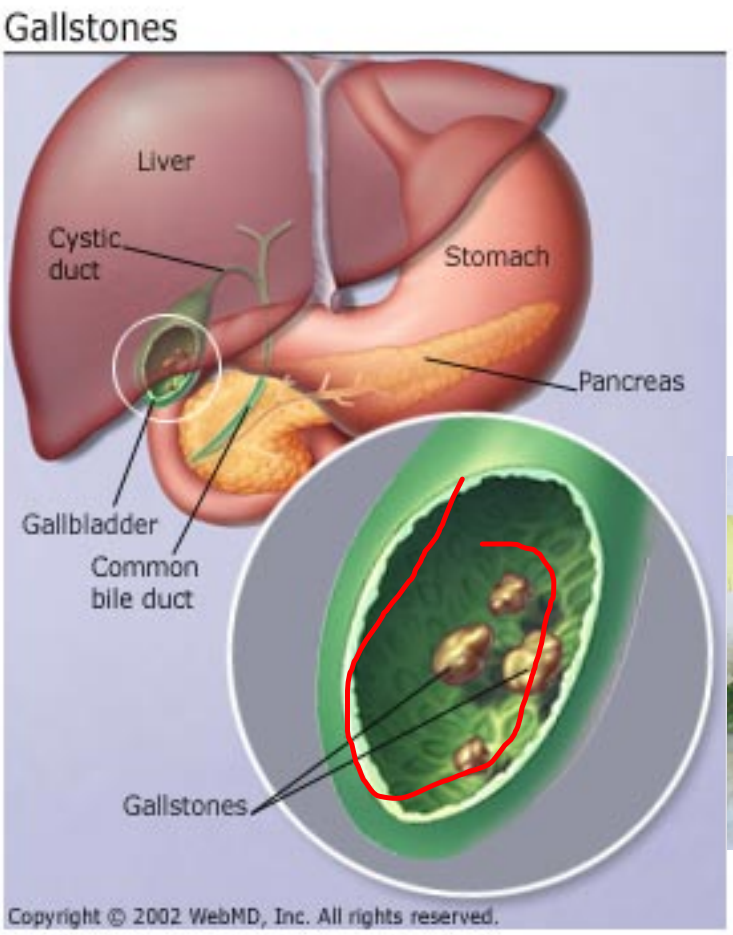
Pancreas secretions also allow the breakdown of proteins, carbs and lipids (fats). Trypsin and erepsin aid in the breakdown of protein. More amylase released from the pancreas helps break down the carbs. Lipases break the lipids and lactase breaks the dairy.



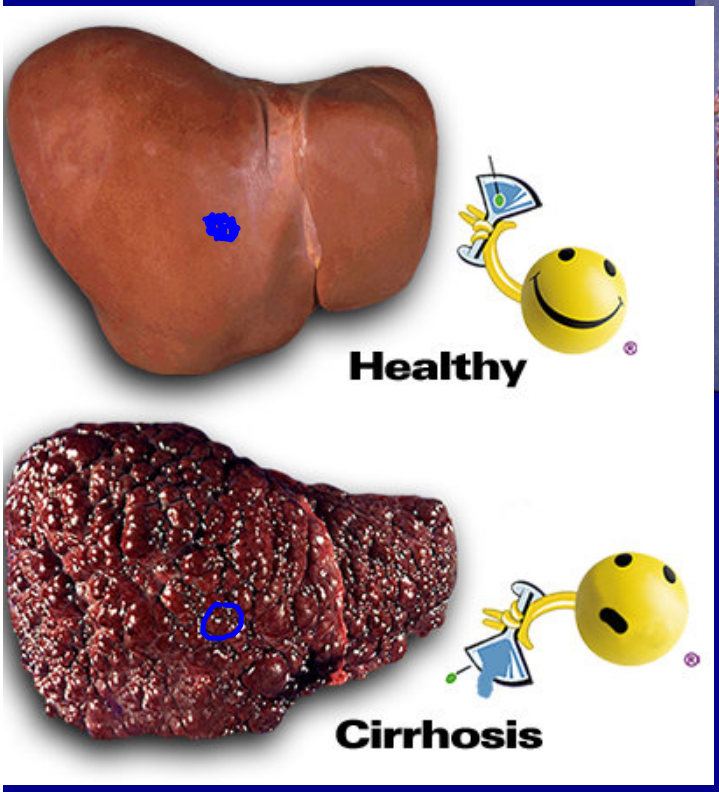


Liver and Gallbladder

Bile salts are produced in the liver and stored in the gallbladder. Carried by the bile duct to the small intestines (s.i.), it is released into the s.i. by a hormone signal. Bile breaks down fat into smaller particles. This is a physical digestion example.

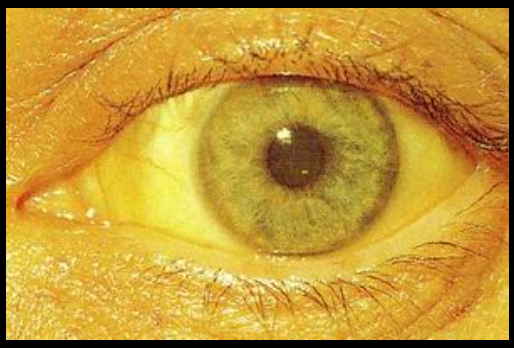


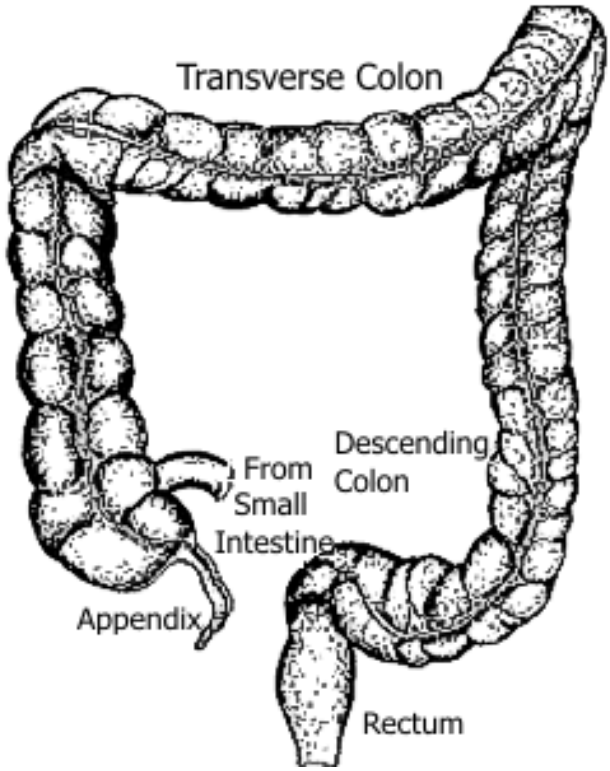
Cholesterol is found in bile. It is involved with salt crystal formation, which may develop into gallstones. These stones may lodge into the bile duct and prevent bile from being released. Not good. Very painful.



The liver stores glycogen and vitamins. It also detoxifies many substances. Cirrhosis of the liver is caused by the damage to liver cells that are replaced by connective tissue and fats.

The accumulation of salts may result in a yellowish discoloration called Jaundice.

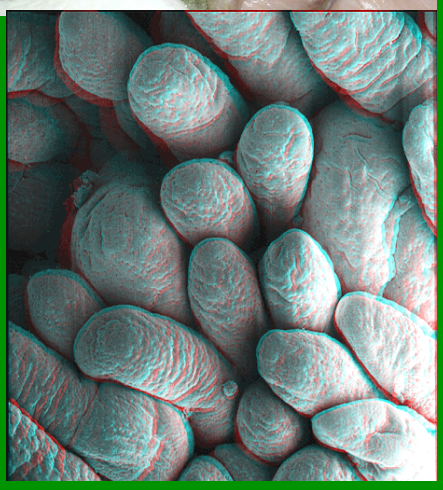




Colon

The colon is the largest part of the large intestine and it stores the water long enough for water to be absorbed. Large intestine also house bacteria, which use waste material to synthesize (make) vitamins B and K. Cellulose provides bulk, which is important for the regular movement of waste.

If a person is not regular, toxic waste remains in the body for unsafe periods of time. This may be linked to colon cancer.



Absorption- Fingerlike tube called villi increase the surface area of the small intestine. More absorption is allowed to take place.

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