

only partially digested). It is known as chyme and passes in small amounts to the small intestine when the pyloric sphincter opens. The pyloric sphincter is a muscular valve that connects the stomach to the small intestine. When it relaxes, the entrance to the small intestine opens. When the ring contracts, the entrance closes.

- Small Intestine- The small intestine is the part of the [gastrointestinal tract](#) following the [stomach](#) and followed by the [large intestine](#), and is where most of the [digestion](#) and absorption of food takes place. It contains of the U-shaped duodenum, jejunum and the coiled ileum. In humans, it is about 6 meters long. When chyme enters the small intestine, it stimulates the pancreas to secrete pancreatic juice, the epithelial cells produce the enzymes maltase, peptidases and lipase and the gall bladder to release bile. Intestinal juice, pancreatic juice and bile are alkaline. This neutralizes the acidic chyme and provides suitable conditions for enzymes in the small intestine. Pancreatic juice contains amylase, lipase and trypsin and is produced by the pancreas, which pass from the pancreatic duct into the duodenum. Bile does not contain enzymes so it cannot digest food but it helps speed up fat digestion.

- o Digestion of different nutrients-

- Starch digestion- Begins in the mouth and continues in the small intestine (none in the stomach) and all the starch is acted upon by pancreatic amylase to form maltose which is acted upon by maltase to form glucose. Lactose present is digested by lactase to form glucose and galactose. Sucrose present would be acted upon by sucrase to form glucose and fructose. End-products of starch digestion- simple sugars (glucose, fructose and galactose). The simple sugars pass through the walls of the small intestine into the blood capillaries, which transport them to other parts of the body.
- Protein digestion- Starts in the stomach and continues in the small intestine. Some proteins are acted upon by pepsin to digest the proteins to polypeptides. The remaining undigested proteins would be acted upon by trypsin to form polypeptides in the small intestine. Erepsin then acts on all the polypeptides to form amino acids. End-product of protein digestion- amino acids. The amino acids pass through the walls of the small intestine into the blood capillaries, which transport them to other parts of the body.
- Fats digestion- Starts in the small intestine. Liver secretes bile (which is stored in the gall bladder). Bile is a greenish-yellow liquid, which contains bile salts and pigments but has no enzymes. Thus, it does not digest but emulsifies fats. The bile is released via the bile duct into the small intestine. The bile salts emulsify the fats, which mean that fats are broken down into tiny fats droplets suspended in water forming an emulsion, so that the surface area to volume area ratio is increased for more efficient digestion by lipase. Lipase is part of