

# *Carbohydrate Metabolism*



## Digestion of Carbohydrates

The digestion of carbohydrates begins in the mouth, where the enzymes produced in the salivary glands hydrolyze some of the  $\alpha$ -glycosidic bonds in starch (amylose and amylopectin) producing maltose, glucose, and smaller polysaccharides called dextrans, which contain three to eight glucose units. After swallowing, the partially digested starches enter the acidic environment of the stomach, where the low pH stops carbohydrate digestion.

When the food-gastric juice mixture enters the small intestine, the pancreas releases sodium bicarbonate to neutralize the HCl.

In the small intestine, which has a pH of about 8, enzymes produced in the pancreas hydrolyze the remaining dextrans to maltose and glucose. Then enzymes produced in the mucosal cells that line the small intestine hydrolyze maltose as well as lactose and sucrose. The resulting monosaccharides are absorbed through the intestinal wall into the bloodstream, which carries them to the liver, where the hexoses fructose and galactose are converted to glucose which then release energy by glycolysis pathway. Glucose is the primary energy source for muscle contractions, red blood cells, and the brain.

