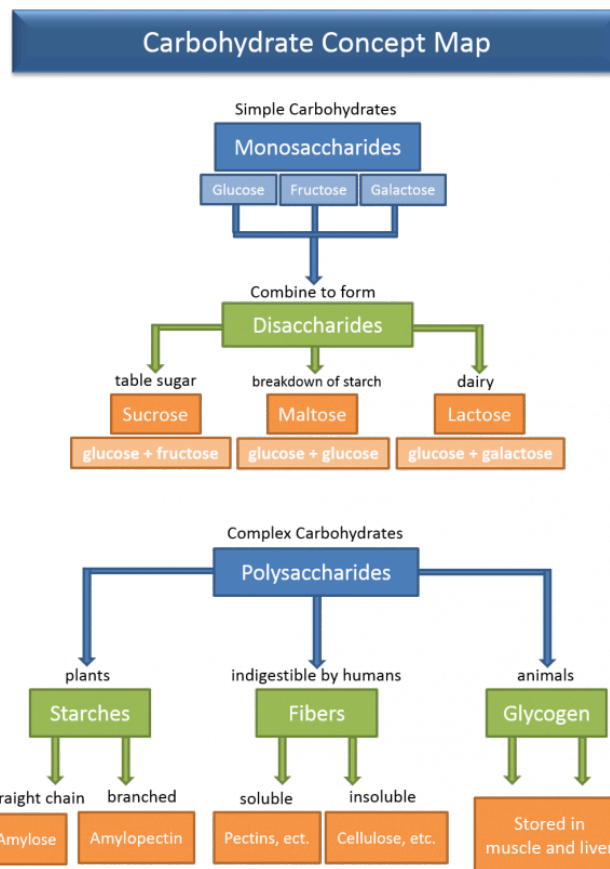


DIGESTION

The digestive process can be initiated by sight, smell, taste, and even the thought of experiencing those things. Although some enzymatic digestion begins in the mouth, most of this process occurs in the small intestine. We will begin our discussion of digestion by starting with the carbohydrate, which provides 45% of the total energy needs of the American diet. Carbohydrates are classified into three groups: **monosaccharides**, **disaccharides** and **polysaccharides**. The small intestine has the ability to absorb monosaccharides but not disaccharides or polysaccharides. Therefore, enzymes are necessary to convert the disaccharides and polysaccharides to monosaccharides prior to absorption. About 50% of dietary carbohydrate is in the form of starch which is the storage form of carbohydrates in plants. The storage form of carbohydrates in animals is the polysaccharide glycogen. Thus, we can obtain dietary carbohydrates from plants (salad) or animals (steak).....yummmm, steak.... why even bother with salad? Both plants and meat are polymers of glucose molecules. Most of the dietary carbohydrates that are disaccharides are ingested as sucrose or lactose (40%). Dietary monosaccharides are fructose and glucose, and make up the remaining 10%.

Remember, only monosaccharides can be absorbed from the small intestine into the blood, therefore all carbohydrates must be enzymatically digested to their simplest form (monosaccharide) before transport can take place. Some polysaccharides cannot be broken down at all because our bodies lack the necessary enzymes. These polysaccharides are known as **fiber**. Fiber is found in all kinds of plants, for example, the outer covering of corn kernels is composed of fiber, thus, if you don't chew the corn it can move through the entire digestive system without receiving a single scratch, in fact it won't even change color. Still, fiber is a very important component for the digestive system as it helps keep the stool loose and moving. Stool that doesn't move through the digestive system can be very unpleasant.



Carbohydrate Concept Map:

Image created by BYU-I student Hannah Crowder, 2013

Above is a carbohydrate concept map that you were introduced to in BIO 264.

Carbohydrate Digestion and Absorption

Protein Digestion and Absorption

Lipid Digestion



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