Viscous Fibers

Examples	Food Sources	Actions
Gums Pectins Muscilages	Fruits Oats & Barley Legumes	↓ Blood Chol. Delay glucose absorption Delay GI emptying

Non-Viscous Fibers

Examples	Food Sources	Actions
Cellulose Hemicellulose Lignings	Whole grains Vegetables	↑Fecal Weight Delay glucose absorption Accelerate transit time

Absorption

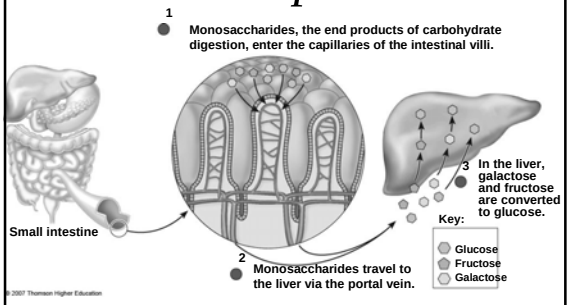
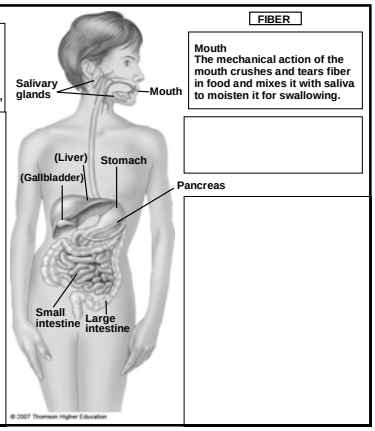


Fig. 4-11, p. 110

STARCH

Mouth and salivary glands
The salivary glands secrete saliva into the mouth to moisten the food. The salivary enzyme amylase begins digestion:

Starch —Amylase→ **Small polysaccharides, maltose**

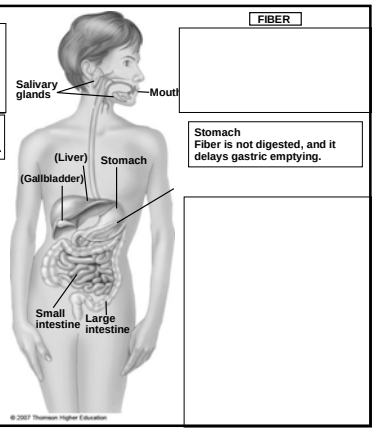


FIBER

Mouth
The mechanical action of the mouth crushes and tears fiber in food and mixes it with saliva to moisten it for swallowing.

STARCH

Stomach
Stomach acid inactivates salivary enzymes, halting starch digestion.



FIBER

Stomach
Fiber is not digested, and it delays gastric emptying.

STARCH

Small intestine and pancreas
The pancreas produces an amylase that is released through the pancreatic duct into the small intestine:

Starch —Pancreatic amylase→ **Small polysaccharides, maltose**

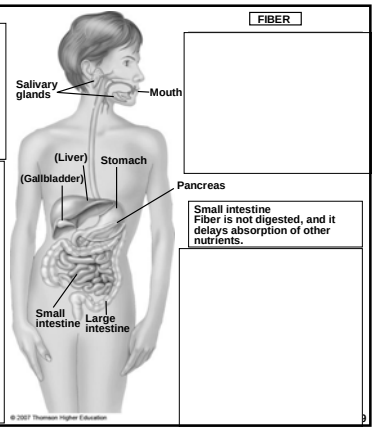
Then disaccharidase enzymes on the surface of the small intestinal cells hydrolyze the disaccharides into monosaccharides:

Maltose —Maltase→ **Galactose + Glucose**

Sucrose —Sucrase→ **Glucose + Glucose**

Lactose —Lactase→ **Fructose + Glucose**

Intestinal cells absorb these monosaccharides.



FIBER

Small intestine
Fiber is not digested, and it delays absorption of other nutrients.

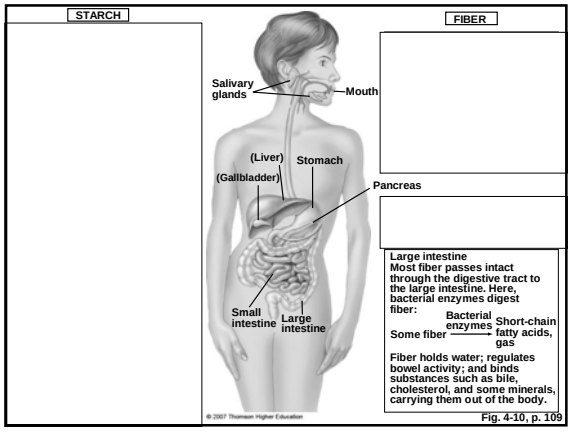


Fig. 4-10, p. 109

Carbohydrate Metabolism

- Glucose is the body's primary energy nutrient.
- Surplus glucose is used to produce glycogen, which is stored in liver & muscle cells.
- As long as glycogen is available, glucose continues to be used for fuel.

Carbohydrate Metabolism

- If no glyogen is available, glucose must be made from other sources.
- *Gluconeogenesis*: the conversion of protein to glucose
- *Protein-sparing action*: adequare dietary carbohydrate prevents the breakdown of body protein to be changed into glucose

Carbohydrate Metabolism

- In the absence of carbohydrate, fat is used for energy.
- Excess fat breakdown produces intermediary products called ***ketones***.
- Excess ketones cause ketosis, and upset the acid-base balance in the body.

Please click out of WebCT and go to the following website to search for information on sugars and fiber.

http://www.webmd.com