Unit 3:

Maintaining Dynamic Equilibrium II

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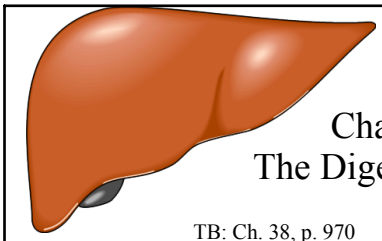
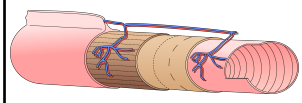
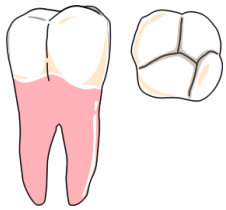


Chapter 9: The Digestive System

TB: Ch. 38, p. 970





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Homeostasis

The human body is a well-organized machine.

It's basic building block is a cell.
ex: nerve cell, skin cell...

Cells with similar structure and function combine to form tissues.
ex: connective tissue, muscle tissue

Many tissues can work together to complete a single function make up organs.
ex: kidneys, lungs, eyes...

Organs that perform similar functions make up organ systems.
ex: digestive system, nervous system...

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All of the body's organ system work around the clock to maintain a stable environment - one in which the factors are controlled, and change as little as possible.

This is *homeostasis*.

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Digestion

- During digestion, food is broken down into forms the body can use.
- The process involves both *physical* and *chemical* changes.

physical changes: change in properties like size, shape, color... No new substances are created.

chemical changes: new substances are created, like burning wood, cooking food, etc...

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Food is made up of *nutrients*:
- sugars (carbohydrates)
- fats (lipids)
- proteins
- vitamins
- minerals
- water

Sugar, fats and proteins must be broken down in smaller, useable forms.

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Mechanical digestion

- The physical breakdown of food into smaller pieces.
- *Mechanical digesition* breaks large pieces into smaller ones, but does not change the actual substances (*physical change*)
- *Chewing* and *grinding* are two ways food is mechanically digested.
- Mechanical digestion starts in the mouth, but continues in the stomach.

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Chemical digestion

- *Chemical digestion* takes place when large food molecules are chemically broken down into smaller molecules

  ex: starch (a complex sugar) is found in foods like bread. As you chew, the starch begins breaking down into smaller sugars (such as glucose)

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In the digestive system, enzymes are released.

enzymes are proteins that control chemical reactions in the body, including the chemical breakdown of food.

Enzymes speed up chemical reactions.

Each enzyme can only break down one specific kind of food molecules.

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