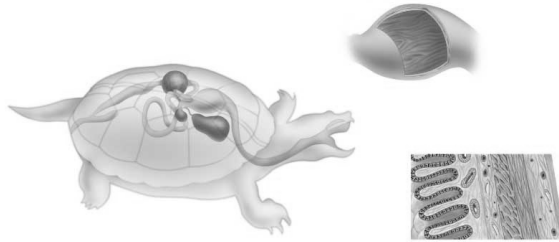


Chapter 26:
Homeostasis and the Organization of the Animal Body



Organization of the Animal Body:

Organ System	Two or more organs working together in the execution of a specific bodily function	 the nervous system
Organ	A structure usually composed of several tissue types that form a functional unit	 the brain
Tissue	A group of similar cells that perform a specific function	 nervous tissue
Cell	The smallest unit of life	 nerve cell

Tissue: Cells that are similar in structure and perform a specialized function

Organ: Structure composed of two or more tissue types that function together (e.g. skin)

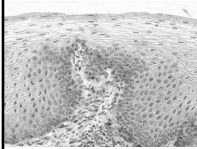
Organ System: Two or more organs that work together to perform a specific function (e.g. digestive system)

Chapter 26: Homeostasis/Organization of the Animal Body

Tissue Types:

(a.k.a. Covering)

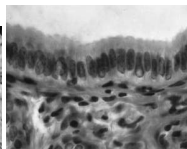
- 1) Epithelial Tissue: Cover body surface / line body cavity
 - Tissue structure adapted to function:



Impermeable Barrier
Skin



Permeable Barrier
Blood vessel



Self-cleaning Barrier
Lung

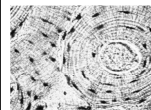
- Some epithelial tissues form glands (exocrine vs. endocrine)
- Tissue continually lost and replaced (mitosis)

Chapter 26: Homeostasis/Organization of the Animal Body

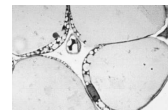
Tissue Types:

- 2) Connective Tissue: Sheet of cells that support and bind other tissues (a.k.a. Support)
 - Consist of cells w/ large quantities of extracellular material
 - Contains collagen / elastic fibers

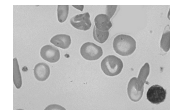
Types of Connective Tissue:



Bone:
Support



Adipose:
Energy Storage;
Insulation



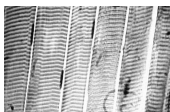
Blood:
Transport;
Protection

Chapter 26: Homeostasis/Organization of the Animal Body

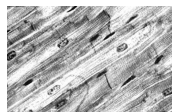
Tissue Types:

- 3) Muscle Tissue: Sheet of cells that can contract when properly stimulated (a.k.a. Movement)

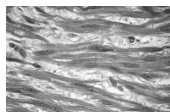
Types of Muscle Tissue:



Skeletal Muscle
Moves skeleton;
Voluntary control



Cardiac Muscle
Pumps heart;
Involuntary control

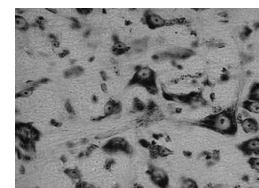
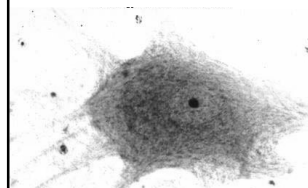


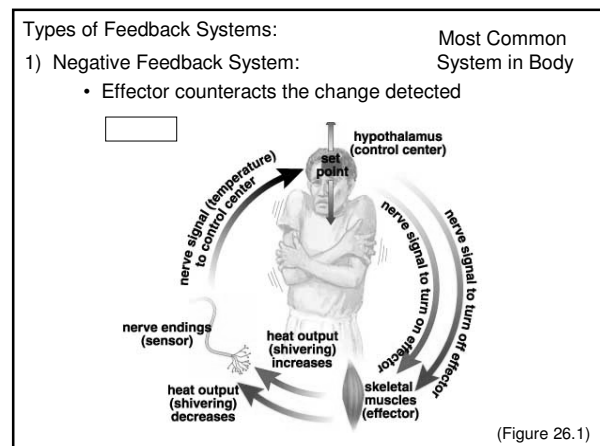
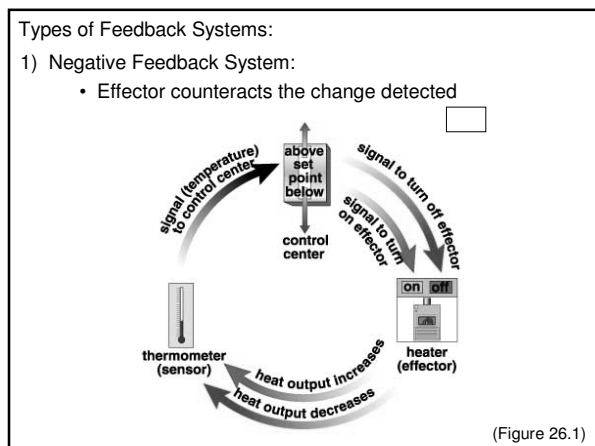
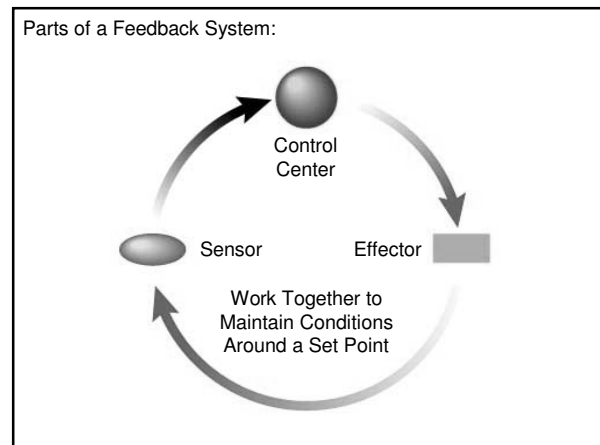
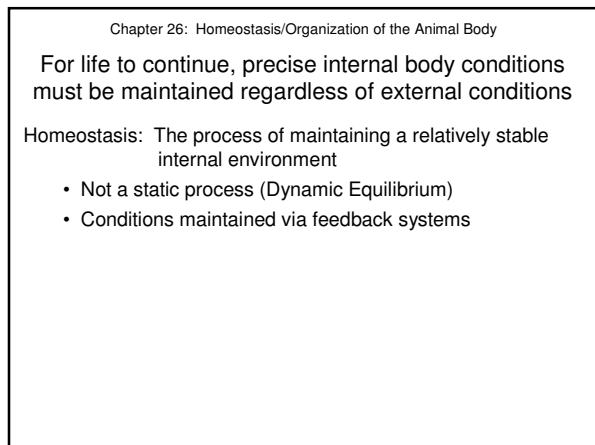
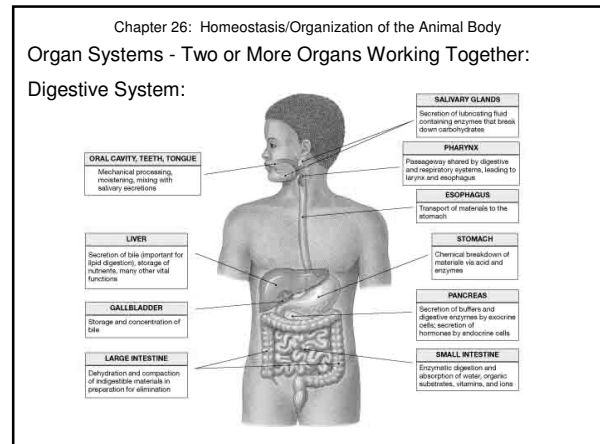
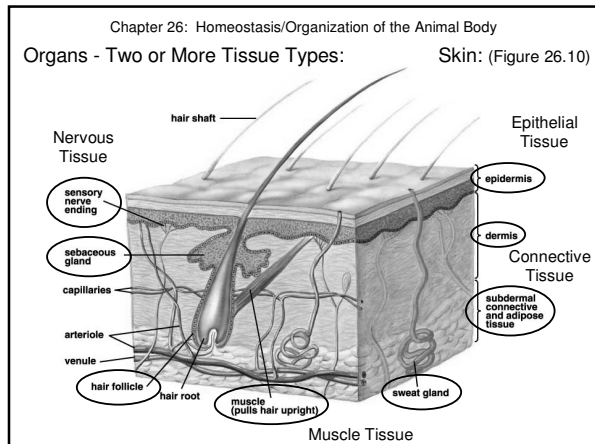
Smooth Muscle
Propels substances;
Involuntary control

Chapter 26: Homeostasis/Organization of the Animal Body

Tissue Types:

- 4) Nervous Tissue: Cells that are capable of transmitting electrical impulses (a.k.a. Control)
 - Compose brain, spinal cord, peripheral nerves
 - Consist of two cell types:
 - A) Neurons: Generate and conduct electrical impulse
 - B) Glial Cells: Support and protect neurons



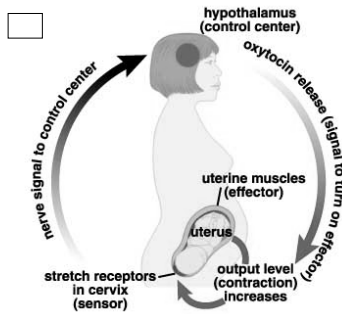


Types of Feedback Systems:

- Nuclear Reaction
- Population Growth

1) Positive Feedback System:

- Effector responds to intensify the original change



(Figure 26.1)

Chapter 26: Homeostasis/Organization of the Animal Body

For life to continue, precise internal body conditions must be maintained regardless of external conditions

Homeostasis: The process of maintaining a relatively stable internal environment

Organ Systems Work Together to Maintain Homeostasis:

- Communication Systems:
 - 1) Nervous System
 - Electrical communication via nerve/muscle tissue
 - Fast; Short duration
 - 2) Endocrine System
 - Chemical communication via bloodstream
 - Slow; Long duration