Types of Tissues

Epithelial	covers outside of body, lines inner organs & cavities
Connective	binds & supports other tissues (collagenous, reticular, & elastic fibers)
Muscle	body movement; skeletal=voluntary, cardiac+smooth=involuntary
Nervous	senses stimuli & transmits signals as nerve impulses

Maintaining Homeostasis

Thermoregulation

- ectotherms=warmed externally
- endotherms=warmed by metabolism
- poikilotherm=temp varies w/environment
- homeotherm=relatively constant temp
- -insulation, vasodilation, vasoconstriction, sweating, thermogenesis, behavior

Osmoregulation

- manages water/solute concentration
- regulate urine concentration/amount

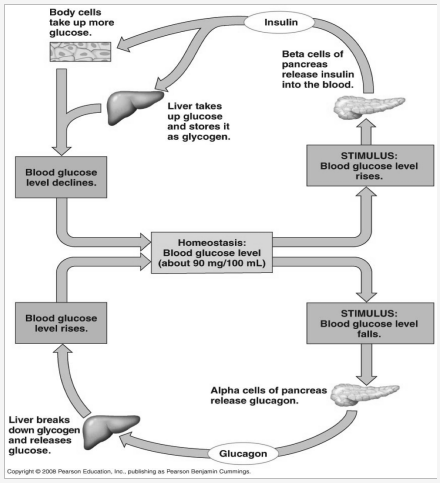
Hormones

hormone	molecule secreted into extracellular fluid that circulates in blood/hemolymph, & communicates regulatory messages
endo/exo--crine glands	ductless/duct-having organs that secrete substances
local regulators	secreted molecules that act over short distances & reach target cells by diffusion (cytokines, growth factors, NO, prostaglandins)
pheromones	chemicals released into external environment for a species to communicate

Endocrine/Nervous System Coordination

hypothalamus	integrates systems, initiates endocrine signaling from nerve info
pituitary gland	stores & secretes hormones from hypothalamus (anterior & posterior)
thyroid gland	thyroid hormone regulates bioenergetics, maintains BP, HR, muscle, digestion

Hormone Pathway: Insulin

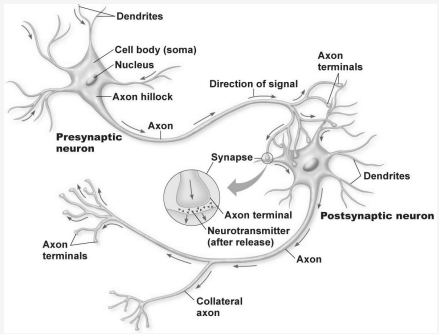


negative feedback= loop in which response reduces initial stimulus

type 1 diabetes= immune system destroys beta cells of pancreas

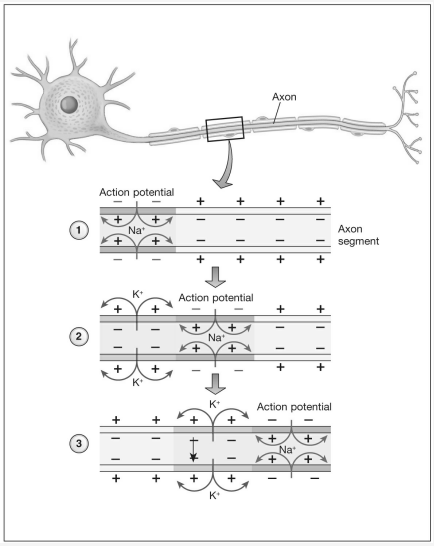
type 2 diabetes= failure of target cells to respond to insulin

Neurons



sensory, inter-, and motor neurons

Action Potentials



purple= depolarized; green= refractory period; yellow= polarized

Nonspecific Immune Defense

Barriers

- skin, mucus, cilia, stomach acid

Systems

- -inflammatory response: histamine ↑ blood flow→immune cells destroy pathogens
- -interferon: inhibits virus reproduction
- -fever: ↓ bacterial growth, stimulates immune system

Specific Immune Defenses

Humoral Immune Response

- B cells attack pathogens w/antibodies

Cell-Mediated Response

- T cells attack pathogens, cells w/pathogens, & cancer cells by lysing them