2022 anatomy exam review!

Introduction

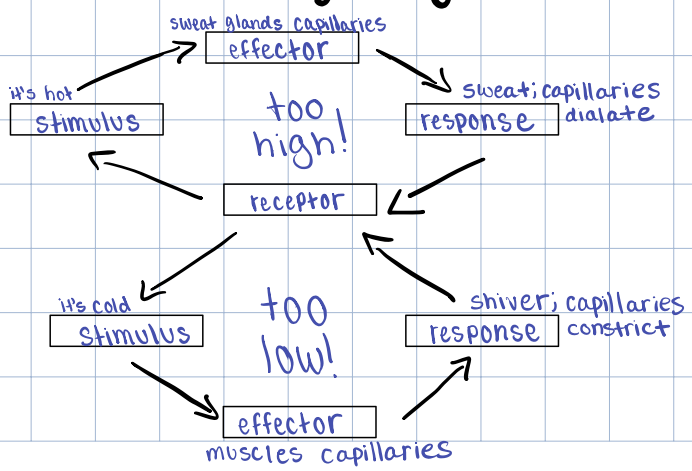
- levels of organization = chemical, cellular, tissue, organ, organ sys-em, organism

organelles

nucleus stores genetic information
nucleolus makes ribosomes
cytoplasm contains the contents of the cell
ribosome makes protein
rough ER makes proteins for the endomembrane system
smooth ER detoxifies the cell and makes lipids
golgi apparatus sorts and ships proteins
mitochondria makes energy
lysosome removes unwanted material
vacuoles store water and nutrients
vesicles transport materials around the cell
cell membrane a thin flexible barrier that separates the cell from its environment

feedback loops and their parts

positive the output/product of a system intensifies the response
examples: childbirth and fruit ripening
negative the output/product of a system causes a counter response to return to a set point
examples: blood sugar regulation and water concentration (osmor ation)



normal body temperature in a human = 37°C or 98.6°F

example = thermoregulation

cellular transport

-passive uses no energy, while active uses energy

diffusion high→low; passive; breathing
facilitated diffusion passive; glucose regulation
osmosis passive; semipermeable membrane; movement of water across the cell membrane
endocytosis active; taking things <u>into</u> the cell
exocytosis active; moving proteins <u>out</u> of the cell
molecular pumps active

anatomical terms

transverse divides body in ↑+↓ parts
dorsal "back side"
ventral "belly side"
proximal closer to the trunk
distal distant or away from
medial middle or in between
lateral away from middle
anterior front of
posterior back of
visceral internal (organs)
parietal external (limbs)

Tissues

epithelium protection; skin
connective tissue stores fat, helps move nutrients between other tissues and organs; bone, cartilage, fat, blood, lymphatic tissue
nervous tissue coordinating and controlling many bodily activities; brain, spinal cord, nerves
muscle tissue skeletal-movement; cardiac-pumps blood/contracts heart; smooth muscle tissue-very flexible-stomach

Digestive System

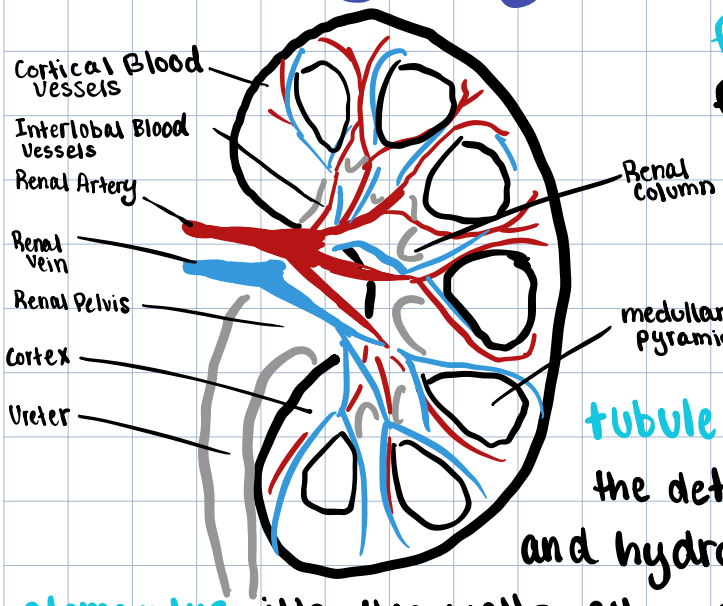
parts of small intestine duodenum-chemical digestion using enzymes; jejunum-absorbs most nutrients; ileum-absorbs bile acids, fluid, and vitamin B-12
parts of large intestine cecum, colon, rectum, anal canal, and anus
* **mechanical breakdown** is the mechanical breakdown of food into small particles, while **digestion** is the chemical breakdown of food into small

chemical substances

salivary amylase is the primary enzyme in saliva; breaks down carbs

pepsin breaks down proteins

Urinary System



functional part of kidney-nephron-filters blood and regulates water concentration and soluable substances

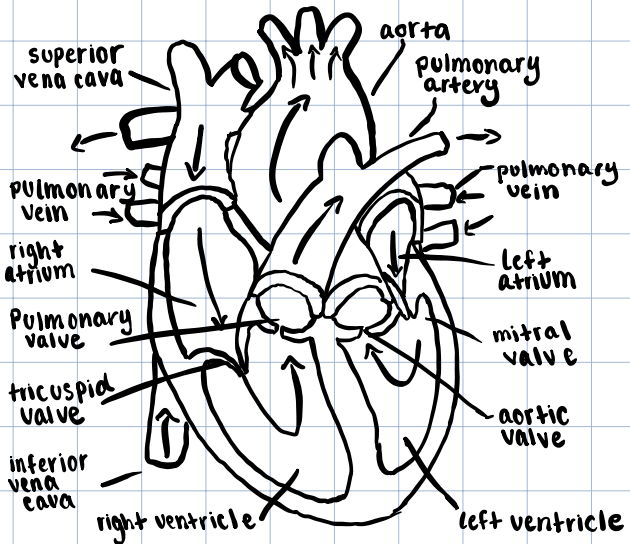
~~nephron structures~~

tubule (proximal) reabsorption of filtrate in accordance with the needs of homeostasis

tubule (distal)/collecting duct concerned with the detailed regulation of water, electrolyte, and hydrogen-ion balance

glomerulus it's thin walls allow smaller molecules, wastes and fluid—mostly water- to pass into the tubule. Larger molecules, such as proteins and blood cells, stay in the blood vessel

Cardiovascular System

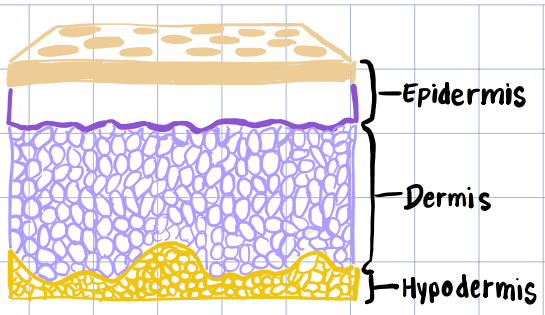


cardiac cycle performance of the human heart from the beginning of one heartbeat the the beginning of the next heartbeat

blood pressure related to the force and rate of heartbeat

myocardium muscular tissue of the heart

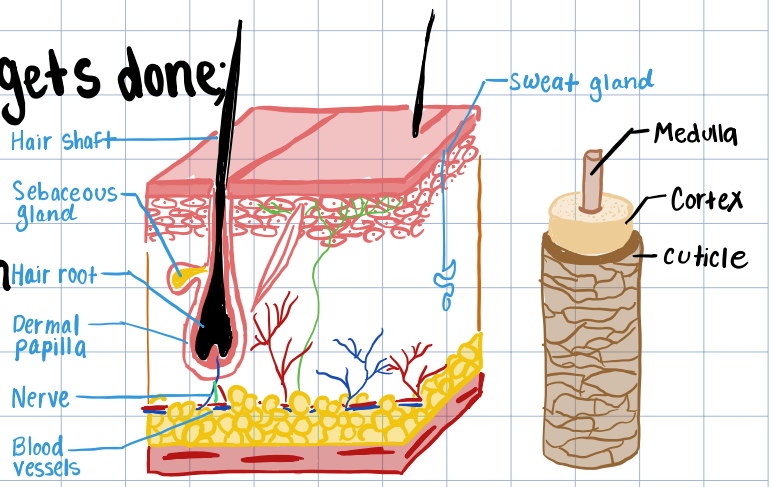
Integumentary System



	eccrine sweat glands	apocrine sweat glands	Sebaceous glands
function(s)	temperature control and antibacterial properties	unknown, potentially sexual scent glands	lubricate/soften skin and hair, slow water loss, and antibacterial properties
type of secretion	sweat	sweat, proteins, and fatty substances	sebum (an oily secretion)
where secretion exits	surface of the skin	usually upper part of hair follicle, rarely found on skin surface	usually upper part of hair follicle, sometimes on skin surface
where in the body	everywhere; extra in palms, soles, and forehead	axillary and anogenital regions of the body	everywhere except on palms and soles

Layers of Skin

epidermis outer part of skin
dermis where majority of work gets done; embedded with blood vessels, glands, hair follicles, and nerves
hypodermis mostly fat; insulation against heat loss, energy storage, shock absorber, and anchors skin to underlying structures



receptors in skin

mechanoreceptor touch
chemoreceptor chemicals
photoreceptor light
nociceptor pain
thermoreceptor heat

Burns

1st Degree Burn top layer of skin; usually doesn't leave a scar
2nd Degree Burn epidermis and dermis; swelling; splotchy skin; blisters; scarring
3rd Degree Burn may reach underlying bones and tendons

Lymphatic System

aquired immunity immunity gained through vaccinations
antibody protein made by WBCs in response to an antigen
antigen a substance that causes the body to make an immune res.
(makes ↑)
B cells develop from stem cells in bone marrow
immunity immune sys. way of protecting against disease/infection
inflammation response to a cellular injury
lymphocyte white Blood Cell w/a single round nucleus

natural killer
NK cells cytotoxic lymphocyte critical to innate immune system
passive immunity short-term immunity from vac. or antibiotic
T cells originate in bone marrow and mature in the thymus
thymus matures T cells
lymph keeps body cells moist
lymph nodes filter substances traveling through the lymph
lymph vessels transports lymph away from tissues
MALT initiates immune responses
spleen makes WBCs; stores and filters blood
pathogens organisms that cause disease and infection
cell-mediated response destruction of infected cells by T cells
humoral response produces antigen-specific antibodies

skeletal system

appedicular skeleton everything connected to axial
axial skeleton head, neck, back, and chest
compact bone dense bone solidly filled with organic ground substances
spongy/cancellous bone porous type of bone
diaphysis central part of a long bone
epiphysis extended end of long bones
fracture cracked/broken bone
ligament bands of tough elastic tissue around joints
osteoblast synthesize bone matrix
osteoclast cells that degrade bone
osteocyte bone cells
synovial fluid found in cavities of synovial joints
articulation location where two or more bones meet

muscular system

insertion the point of attachment where more movement occurs
origin the attachment
tendon fibrous connective tissue that attaches muscle to bone

myofilaments 3 protein filaments in muscle cells
neuromuscular junction highly specialized synapse between a motor neuron nerve terminal and its muscle fiber
prime mover muscle that provides primary force driving the action
sarcomere functional/contractile unit of a muscle fiber
synergist act around movable joint
muscle fatigue decreases a muscle's ability to perform over time
fasicle bundle of muscle fibers; provides pathways for the passage of blood vessels and nerves