

General Definitions

Anatomy: The science of body structures and relationships

Physiology: The science of body functions

Homeostasis: a condition of equilibrium (balance) in the body's internal environment

Structural Levels of the Body

1. Chemical Level	Atoms (C,H,O,N,P)
2. Cellular Level	Chemicals together - smallest basic living unit of the body
3. Tissue Level	Cells coming together
4. Organ Level	Stomach...single organisms in a body
5. Organ System Level	Digestive System... Group of organs
6. Organism Level	Human... Organ Systems

Feedback Systems

Receptor	Body structure that monitors and sends input to the control center	Nerve ending of the skin response to temperature change
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Control Center	Brain	Sets range of values; evaluates input; generates output command as Nerve impulses
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Effector	Receives output from the control center and produces a response that changes the controlled conditions	found in nearly every organ or tissue; if body temp drops, brain sends an impulse to the skeletal muscles to contract which causes shivering to generate heat
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Organ Groups = Organ Systems

Integumentary	hair, skin, nails, endocrine glands
Skeletal	Bones, Cartilage, Joints
Muscular	Skeletal Muscle
Nervous	Brain, spinal cord, nerve
Lymphatic	thymus, spleen, lymphatic vessel, lymph node
Respiratory	Larynx, lung, bronchea, pharynx
Reproductive	Ovary, testes, penis, vagina, mamary gland
Urinary	Kidney, ureterm urinary bladder, urethra
Cardiovascular	Heart, artery, vein, blood vessels
Endocrine	Pineal gland, thyroid gland, pancreas, ovary, testis, adrenal gland., thymus, pituitary gland
Digestive	Pharynx, anus, small intestine, large intestine, gallbladder, liver, stomach, pancreas

Negative Feedback

External (running) or internal (stress) stimulus increase BP **Baroreceptors (pressure sensitive receptors)**

- Detect higher Bp
- send nerve impulses to brain (control center) for interpretation
- Response sent via nerve impulse to heart and blood vessels (effectors)
- BP drops and homeostasis is restored
- Drop in BP negates the original stimulus

Positive Feedback System: Normal Childbirth

1. Uterine contractions cause cervix to open
2. Stretch-sensitive receptors in cervix send impulse to brain

Positive Feedback System: Normal Childbirth (cont)

3. Oxtocin is released into the blood
4. Contractions enhanced and baby pushes farther down the uterus
5. Cycle continues to the birth of the baby (no stretching)

Body Planes

Sagittal Plane	Head to toe slice dividing body into right and left sides
Mid-sagittal/median plane	At the mid line, equal right and left halves
Transverse Plane	Slice that cuts the body into superior and inferior parts
Coronal or frontal plane	Slice that cuts the body into anterior and posterior parts

Body Parts

Upper Limb	arm, forearm, wrist, hand
Lower Limb	thigh, leg, ankle, foot
Trunk	thorax, abdomen, pelvis

Tissue Types

Connective
Epithelial
Nervous
Muscle
Different types of tissues can be grouped together to form an organ. Skin= Epidermis (epithelial tissue) + Dermis (connective tissue) Heart=Outerwall (epithelial & Connective)+Middle (muscle)+Inner Wall (epithelial & connective)

Characteristics Essential for Life

Organization
Metabolism
Responsiveness
Growth
Development
Reproduction

Control of Homeostasis

Physical Insults exercise, cut in hand

Chemical in the
Internal
Environment Glucose/Salt fluxuations

Physiological
Stress/Imbalance Flu Shot

Disruptions (long and
short term) Short: Exercise Long: cells stop
producing dopamine --> Parkinsons

Homeostatic Imbalances: Normal equilibrium of body processes
are disrupted

Intro Terms for Body Orientation

Anatomical position Standing, facing forward, palms forward

Supine when laying face up

Prone When laying face down

Superior The head is above the shoulders

Inferior The shoulders are below the head

Caudal Towards the tail

Cranial/ Cephalic Towards the head

Proximal Closer to you

Anterior Front

Posterior/ Dorsal Back

Lateral off to the side of the midline

Medial Towards the midline

Superficial On the surface

Deep Inside



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Page 2 of 2.

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