

### 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

<b>Receptor</b>	Body structure that monitors and sends input to the control center	Nerve ending of the skin response to temperature change
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<b>Control Center</b>	Brain	Sets range of values; evaluates input; generates output command as Nerve impulses
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<b>Effector</b>	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

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

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

### Body Parts

<b>Upper Limb</b>	arm, forearm, wrist, hand
<b>Lower Limb</b>	thigh, leg, ankle, foot
<b>Trunk</b>	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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