

Chapter 1: The Human Body: An Orientation

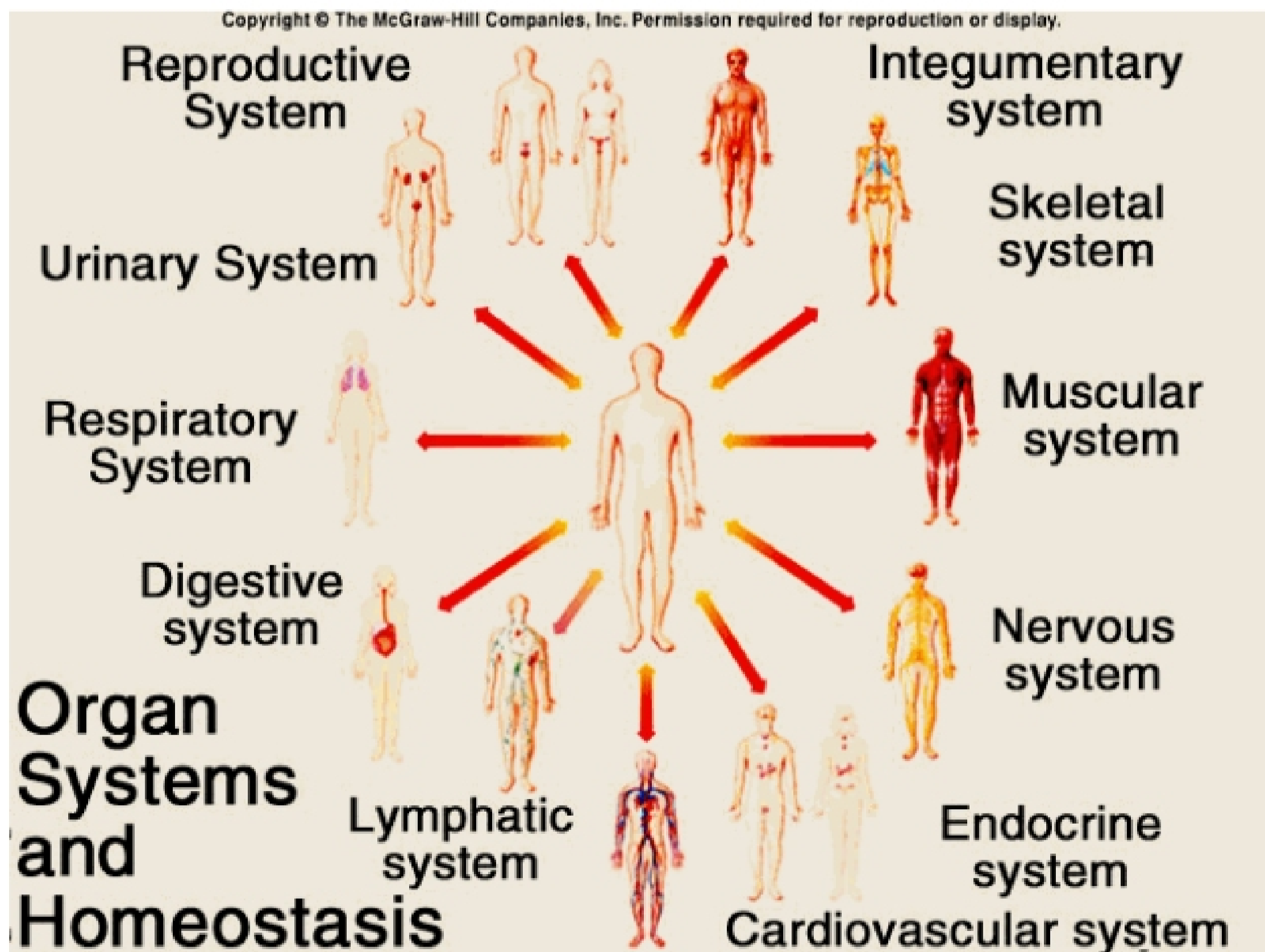
1.1 Anatomy & Physiology

- Anatomy - the study of the structure of body parts and their relationships to one another
 - Gross or macroscopic-Structures studied without a microscope.
 - regional: all structures in one part of the body
(such as the abdomen or leg)
 - systematic: gross anatomy of the body studied by system
 - surface: study of internal structures as they relate to the overlying skin
 - Microscopic- Structures studied with a microscope.
 - Cytology: Cell
 - Histology: Tissue
 - Developmental- development cycle from egg fertilization till death.
 - Embryology: Embryo (1st 8 weeks after fertilization)
- Physiology - the study of the function of the body's structural machinery often at the cell or molecular level.
 - Renal: Kidney function
 - Neurophysiology: Nerve cells/Nervous system
 - Cardiovascular: Heart and blood vessels.

1.2 Structural Organization Levels

- 6 Levels of Structural Organization:
Atom->Molecule->Cells->Tissues->Organs->Organ Systems->Organism
 1. Chemical Level: Atoms(C,H,O,N,P) -> Molecules (DNA)

2. Cellular Level: Multiple molecules=Cells(ex/muscle, nerve, epithelial)
3. Tissue level: Multiple cells=Tissues
 - a. Epithelial
 - b. Connective
 - c. Muscular
 - d. Nervous.
4. Organ Level: 2+ types of tissues=Organs
 - a. Specific functions
 - b. Recognizable shapes
 - c. Can be in more than one system (pancreas-digestive and endocrine.)
5. System Level: Different organs working together.
6. Organism: Multiple organ systems (any living individual)



(b) 11 Systems of the Human Body

System	Components	Functions
1. INTEGUMENTARY	Hair, Skin & glands, finger/toenails	<ul style="list-style-type: none"> Protects body Regulates body temp Elimination of waste Vitamin D production Detects sensation
2. SKELETAL	Bones, Cartilage & Joints	<ul style="list-style-type: none"> Support/protect organs Muscular framework Blood cell formation Mineral & lipid (fat) Storage
3. MUSCULAR	Skeletal (attached to bones) Muscles & Tendons	<ul style="list-style-type: none"> Body movement Maintains posture Heat generation
4. NERVOUS	Brain, Spinal Column & Nerves	<ul style="list-style-type: none"> Communication/Control center Response to stimuli by activating muscles & glands
5. ENDOCRINE	Hormone producing glands (pineal, pituitary, thyroid, thymus, adrenal, pancreas, testies/ovaries)	<ul style="list-style-type: none"> Slow communication/regulation via hormones (chem. messengers)
6. CARDIOVASCULAR	Blood, Heart & Blood Vessels	<ul style="list-style-type: none"> Transport O₂ & nutrients to cells Transport CO₂ & waste away from cells Regulate: pH, temp, H₂O & body fluids
7. LYMPHATIC	Lymph Fluid, Vessels & Nodes Spleen, thoracic duct, thymus & tonsils	<ul style="list-style-type: none"> Fight infection/immunity
8. RESPIRATORY	Lungs, Pharynx, Trachea, Bronchial Tubes	<ul style="list-style-type: none"> O₂ in & CO₂ Out Removes wastes Regulate pH Vocal sounds
9. DIGESTIVE	Mouth, Salivary Gland, Pharynx, Esophagus, Liver, Gallbladder, SI, LI, Anus, Stomach, Pancreas	<ul style="list-style-type: none"> Breakdown of food into absorbable units Remove solid waste
10. URINARY	Kidneys, Ureter, Urinary Bladder & Urethra	<ul style="list-style-type: none"> Produce, store & eliminate urine Remove N wastes Regulation of H₂O, pH, mineral, protection of RBCs
11 (a). MALE REPRODUCTIVE	Penis, prostate, penis, testies, scrotum	<ul style="list-style-type: none"> Production of offspring Testes – Sperm & male sex hormones
11 (b) FEMALE REPRODUCTIVE	Mammary Glands, Ovaries, Uterus & Vagina	<ul style="list-style-type: none"> Production of offspring Ovaries – Eggs & Female sex hormones Mammary glands – milk for nourishment of newborn