Definitions

Anatomy: The study of the structure of body parts and their relationships to one another (organization). It is concrete; can be seen, felt, and examined.

***Gross anatomy:** The study of the larger structures of the body, those visible without the aid of magnification

***Microscopic anatomy:** The study of structures that can be observed only with the use of a microscope or other magnification devices

Physiology: The study of the function of living organisms. How all the body parts work and carry out their life-sustaining activities.

Levels of Organization

Subatomic particles: Parts of an atom; protons (+), neutrons (0), and electrons (-)

Molecule: 2 or more bonded atoms.

Macromolecule: Many small molecules into one large molecule.

Organelle: A structure within a cell that performs a specialized function

Cell: The basic unit of structure and function in an organism

Tissue: A group of cells of similar origin which work as a unit to carry out a specialized function

Organ: A structure made of 2 or more tissue types that work together to carry out a specialized function

Organ System: A collection of organs that act together to carry out related body activities

Organism: An individual living thing made up of organ systems

Organelles

Organelle	Function
Cytosol	The jelly-like substance within the cell, provides the fluid medium necessary for biochemical reactions.
Cytoplasm	The organelles and cytosol together
Endoplasmic Reticulum	Provides passages throughout much of the cell that function in transporting, synthesizing, and storing materials.
*Rough ER	Synthesis and modification of proteins
**Ribosomes	Site of protein synthesis
*Smooth ER	Lipid synthesis
Golgi Apparatus	Sorts, modifies, and ships off the products that come from the rough ER
Lysosomes	Contains enzymes that break down and digest unneeded cellular components, such as a damaged organelle.
Mitochondria	The “energy transformer”, convert energy stored in nutrient molecule into adenosine triphosphate (ATP), which provides usable cellular energy to the cell
Peroxisome	Lipid metabolism and chemical detoxification

Organelles (cont)

Cytoskeleton	Helps the cells to maintain their structural integrity; cell motility, cell reproduction, and transportation of substances within the cell
Centriole	The cellular origin point for microtubules extending outward as cilia or flagella or can assist with the separation of DNA during cell division
Nucleus	The "control center of the cell"; contains the genetic material that determines the entire structure and function of that cell
Nuclear Envelope	Membrane surrounding the Nucleus
Nuclear Pore	Tiny passageways for the passage of proteins, RNA, and solutes between the nucleus and the cytoplasm
Nucleolus	Manufactures the RNA necessary for construction of ribosomes
Chromatin	Genetic material composed of DNA and proteins

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