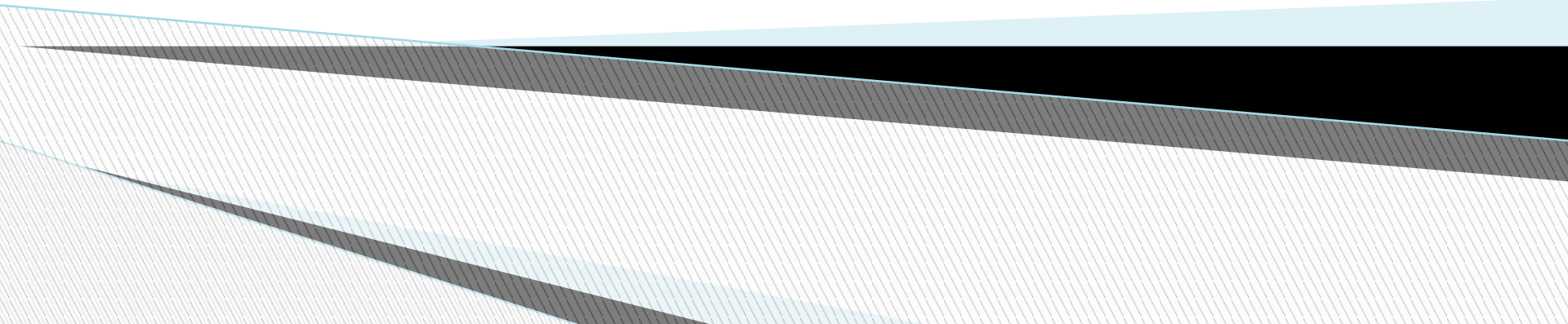


Chapter 2

The Human Body in
Health and Disease



Anatomic Reference Systems

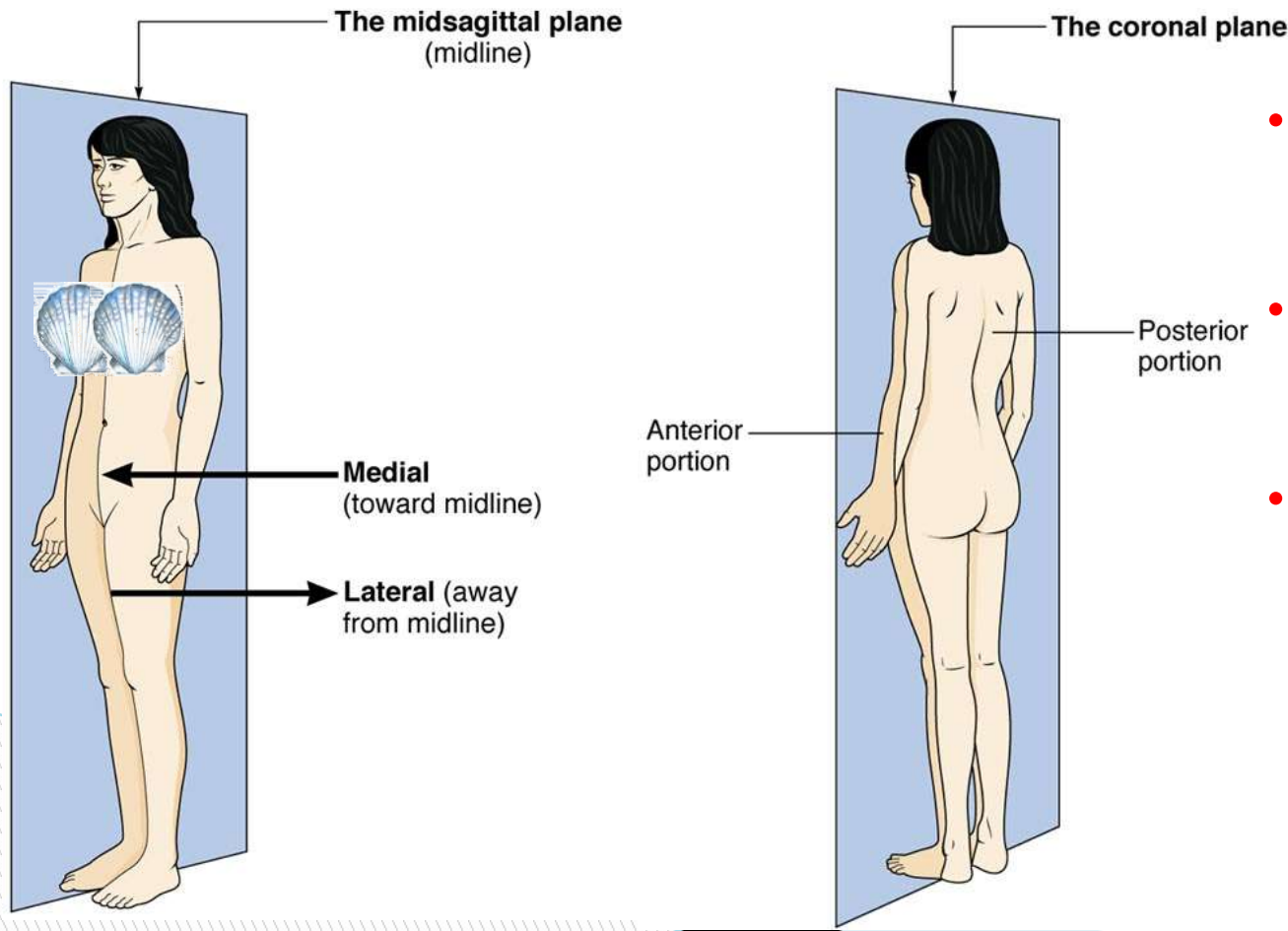
Describe the location and functions of body parts using:

- Body planes
- Body directions
- Body cavities
- Structural units

- **Anatomy** is the study of the structures of the body
- **Physiology** is the study of the functions of these structures
- Descriptions of the body are based on the **anatomic position** – standing up, facing forward, arms at sides and palms forward.

Body Planes

Ventral Planes – an up and down line

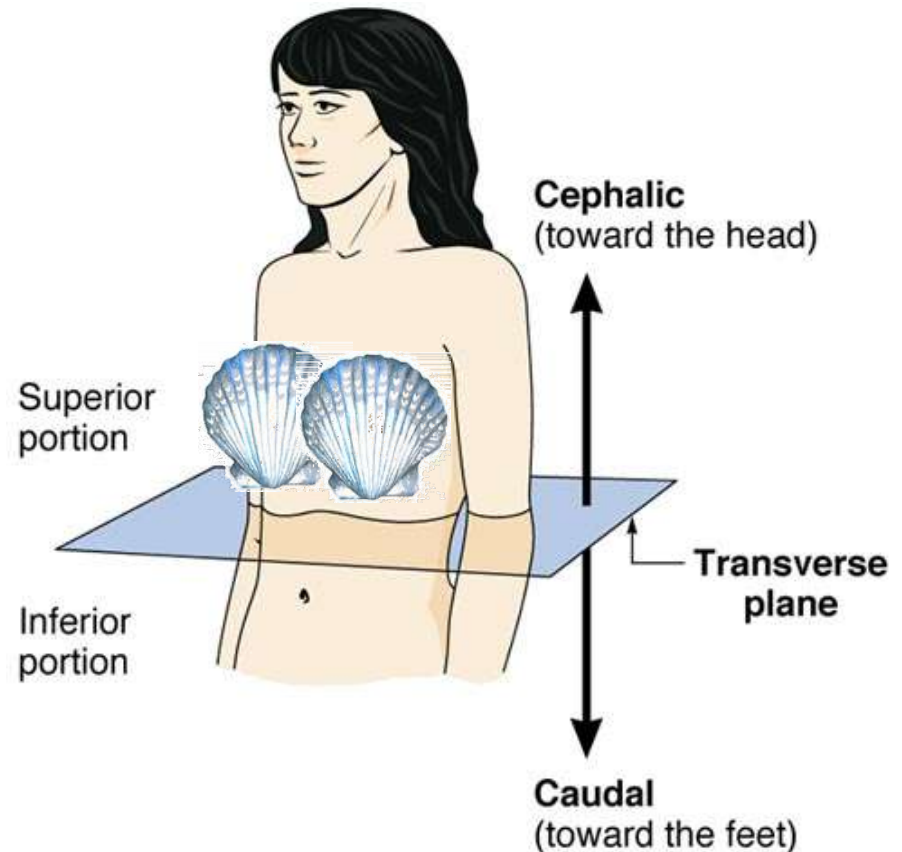


- **Midsagittal** – cuts body into equal left and right sides
- **Sagittal** – cuts but into unequal left and right sides
- **Coronal/Frontal** – cuts body into front and back sides

Body Planes

Horizontal Planes – a flat crosswise line like the horizon

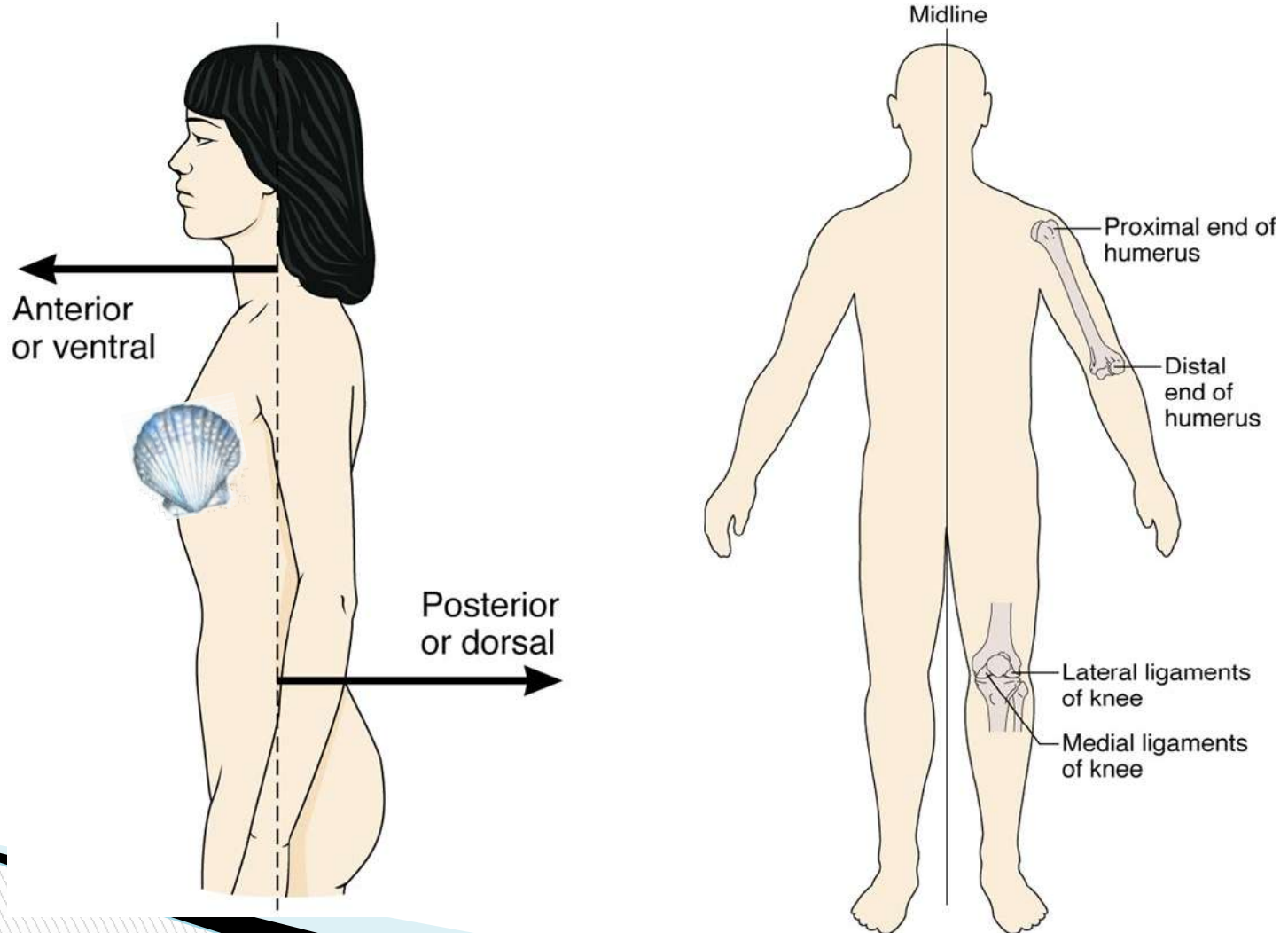
Transverse plane – also known as a horizontal plane, cuts the body into top and bottom halves (does not have to be equal)



Body Directions

Body Directions	
Ventral (ventr ; -al) refers to the front (or belly) side of the body or organ.	Dorsal (dors ; -al) refers to the back of the body or organ.
Anterior (anter ; -ior) means situated in the front. Also means forward part of organ.	Posterior (poster ; -ior) means situated in the back. Also means the back part of the organ.
Superior means uppermost, above or toward head.	Inferior means lowermost, below or towards the feet.
Cephalic (cephal ; -ic) means towards the head.	Caudal (caud ; -al) means towards the lower part of the body.
Proximal means situated nearest the midline or beginning of a structure.	Distal means situated farthest from the midline or end of a structure.
Medial means the direction toward or nearer the midline.	Lateral means the direction toward or nearer the side, away from midline.

Body Directions



Major Body Cavities

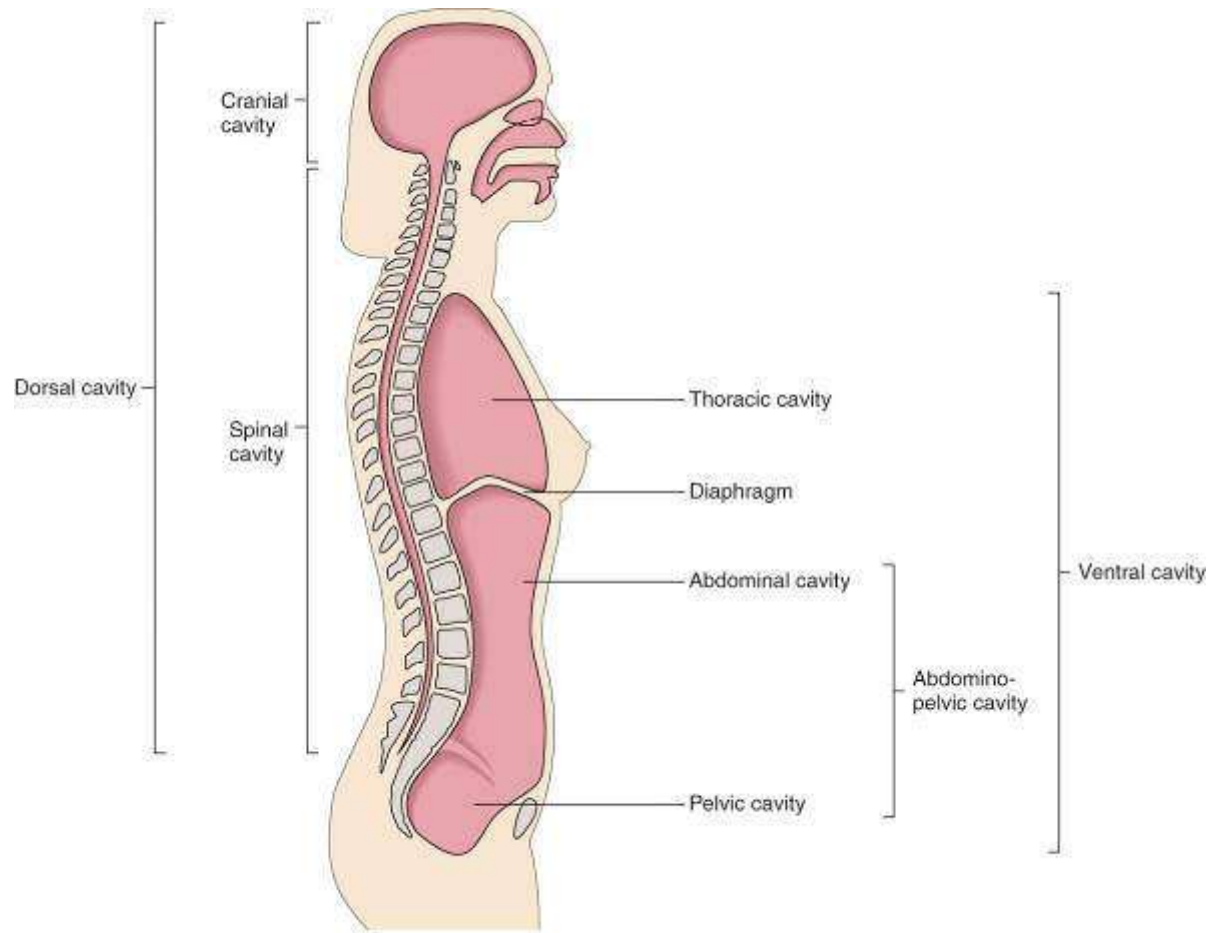
Dorsal Cavity

- Cranial (**crani**; **-al**) Cavity is located within the **skull**
- Spinal Cavity is located within the **spinal column**

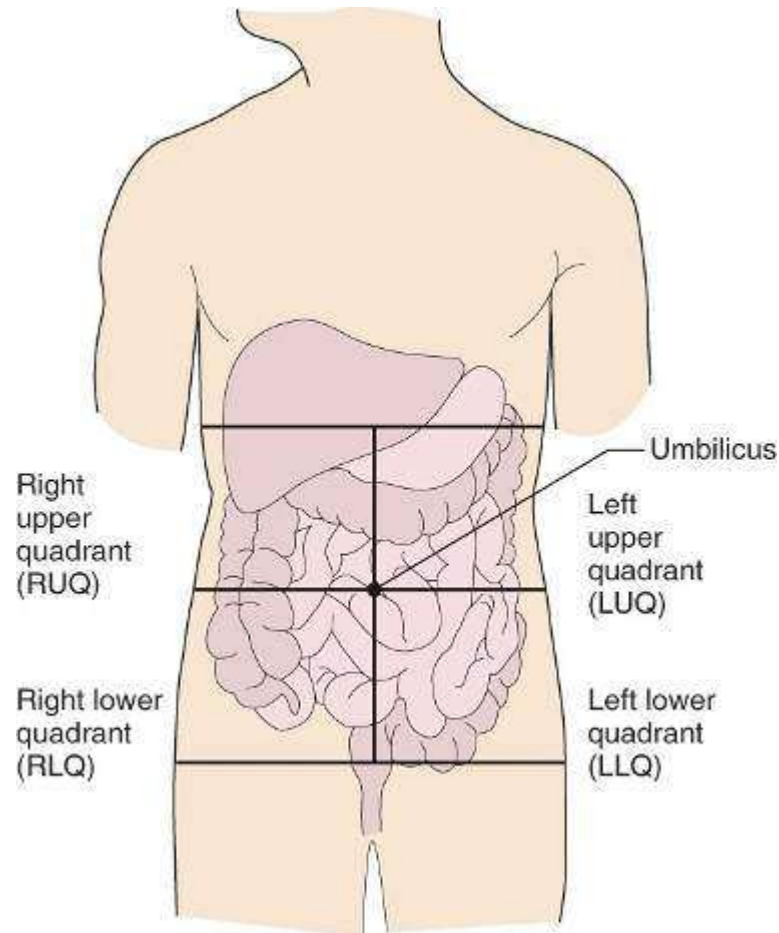
Ventral Cavity has 3 parts and contains many of the organs that maintain **homeostasis** (constant internal environment)

- Thoracic (**thorac**; **-ic**) Cavity or chest cavity
- Abdominal (**abdomin**; **-al**) Cavity or abdomen
- Pelvic Cavity is the space formed by the **pelvic bones**.

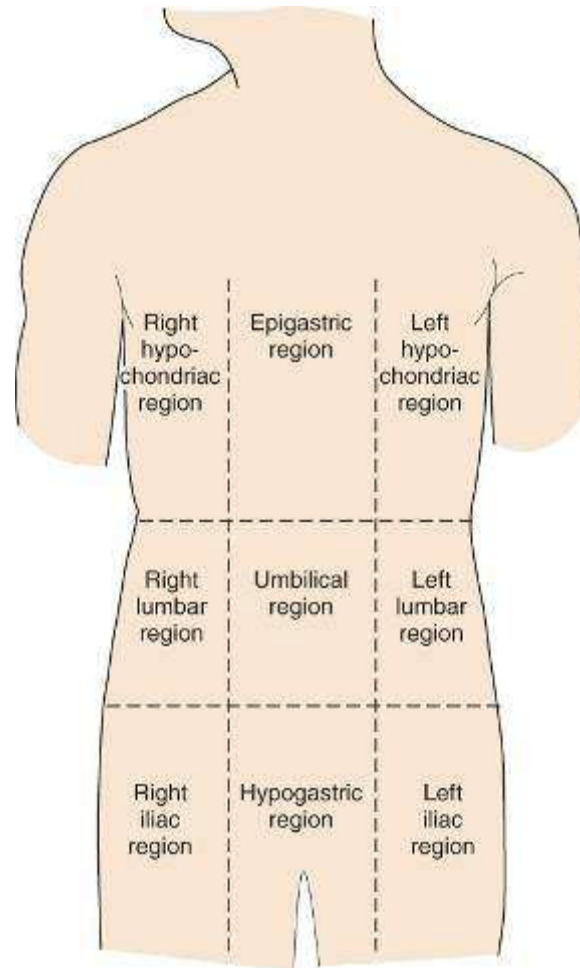
Major Body Cavities



Quadrants of the Abdomen



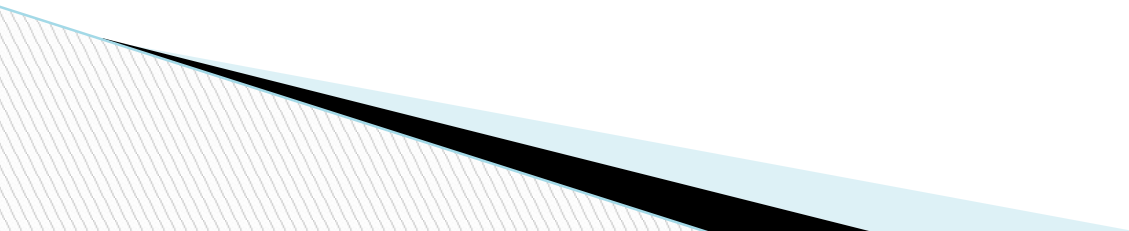
Regions of the Thorax and Abdomen



Peritoneum

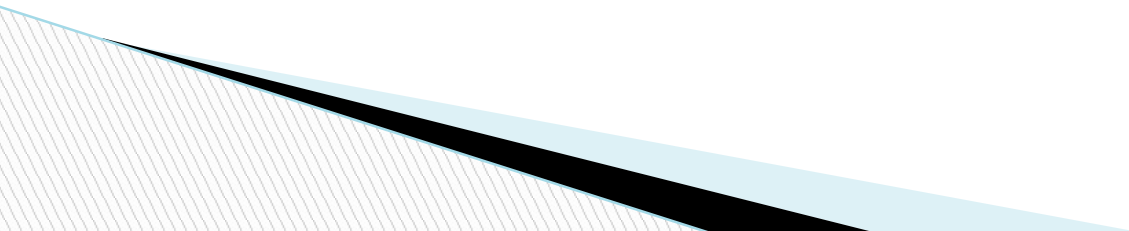
Membrane that protects and supports the organs located in the abdominal cavity

Periton = peritoneum



Laparoscopic Procedures

Is the visual examination of the interior of the abdomen with the use of a laparoscope (**lapar/o; -scope**)



Cytology

The study of the formation, structure, and function of cells, including: (**cyt**; **-ology**)

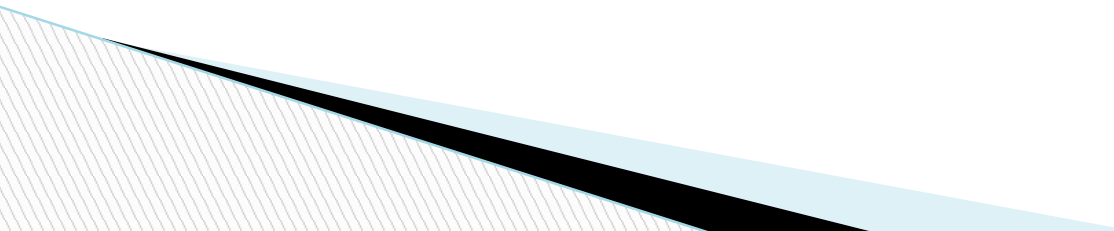
- Chromosomes – 23 pairs
- DNA – 2 long, coiled molecules make up chromosomes. Contain (functional units of heredity).
- Genetics (**gene**; **-tics**) is the study of how genes are transferred from parents to child.



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Genetic Disorders

Are diseases or conditions caused by a defective gene.

- Cystic Fibrosis
 - Down Syndrome (Trisomy 21)
 - Hemophilia
 - Huntington's Disease (HD)/Huntington's Chorea (HC)
 - Muscular Dystrophy
 - Phenylketonuria
 - Sickle Cell Anemia
 - Tay-Sachs Disease
- 

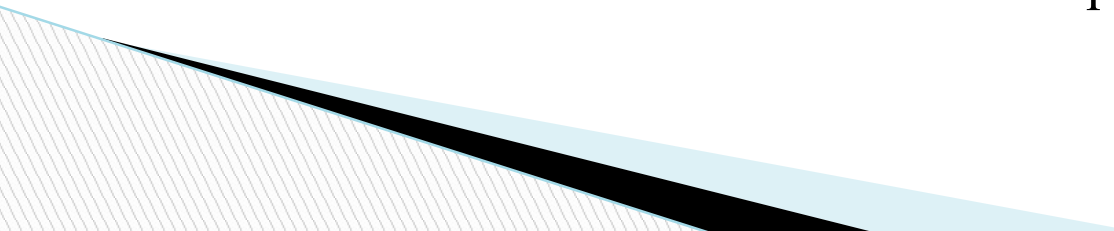
Congenital Disorders

Is an abnormal condition that exists at the time of birth

- Developmental Disorders
- Prenatal Influences
- Birth Injuries

Histology

The study of tissues, which are composed of cells that join together to perform specific functions, including:

- **Epithelial** Tissues - protective covering for all internal and external surfaces of the body. (epithelium and endothelium)
 - **Connective** Tissues – support and connect organs and other body tissues. (dense connective tissue, Adipose (**adip; -ose**), Loose Connective Tissue, Liquid Connective Tissue)
 - **Muscle** Tissue – contains cell material with the specialized ability to contract and relax
 - **Nerve** Tissue – contains cells with the specialized ability to react to stimuli and conduct electrical impulses.
- 

Pathology of Tissue Formation

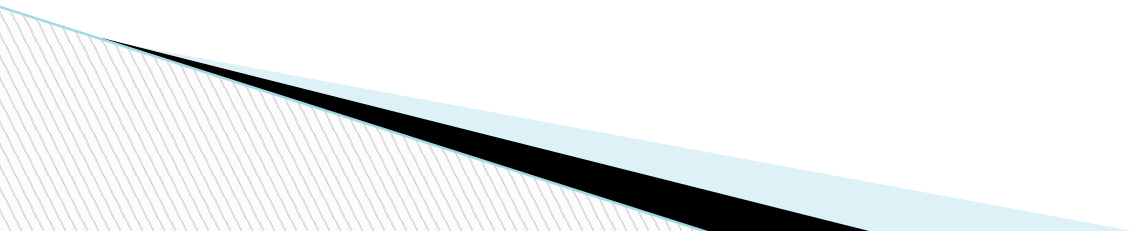
Aplasia (a-; -plasia)

Hypoplasia

Hyperplasia

Dysplasia

Anaplasia



Glands

Specialized cells that secrete material used elsewhere in the body, including:

- **Exocrine** Glands secrete their substances into ducts (sweat)
- **Endocrine** Glands do not have ducts, they flow directly into the bloodstream.

Pathology & Procedures of the Glands

Adenectomy (**aden**; **-ectomy**)

Adenitis (**-itis**)

Adenoma (**-oma**)

Adenomalacia (**-malacia**)

Adenosclerosis (**-sclerosis**)

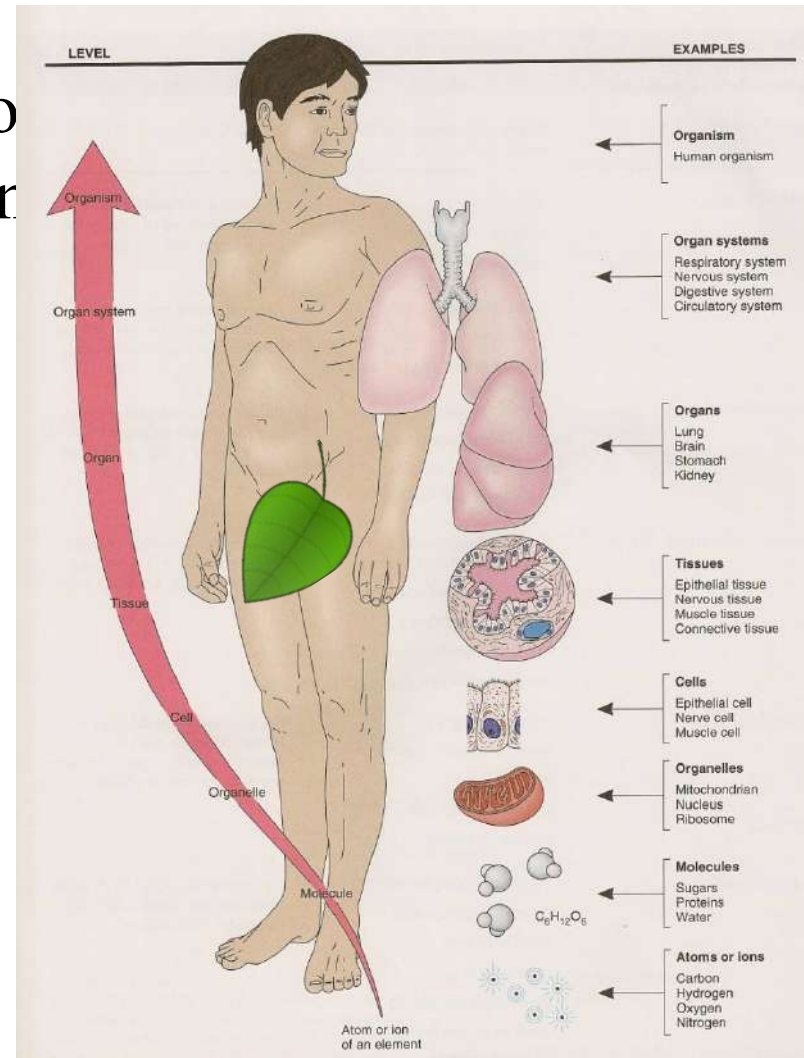
Adenosis (**-osis**)

Organ and Body Systems

Body parts are organized into systems according to function

Examples:

- Skeletal System
- Muscular System
- Cardiovascular System

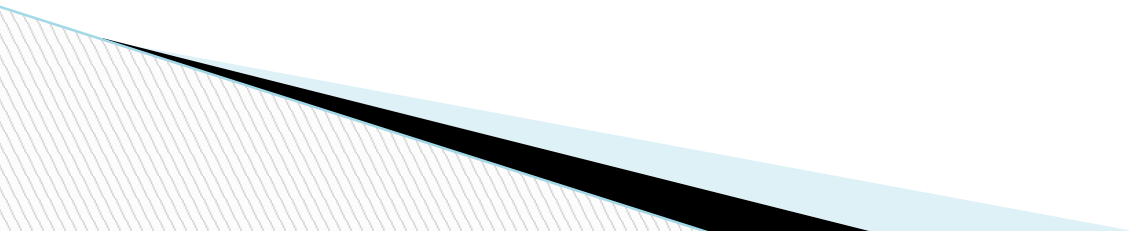


Pathology

Is the study of structure and functional changes caused by disease (**path/o; -pathy**)

- Etiology – study of the causes of disease (**eti-; -ology**)

Types of Disease



Disease Transmission

Communicable or contagious- one person to another

Contamination- with an infectious agent

Bloodborne-through contact with blood or body fluids.

STDs

Airborne-droplet contact. Sneezes/coughs

Water or foodborne illnesses-fecal/oral transmission

Outbreaks of Diseases

Endemic- ongoing presence of a disease (common cold)

Epidemic-sudden widespread outbreak (measles)

Pandemic-outbreak of disease over large geographic area (AIDS)

