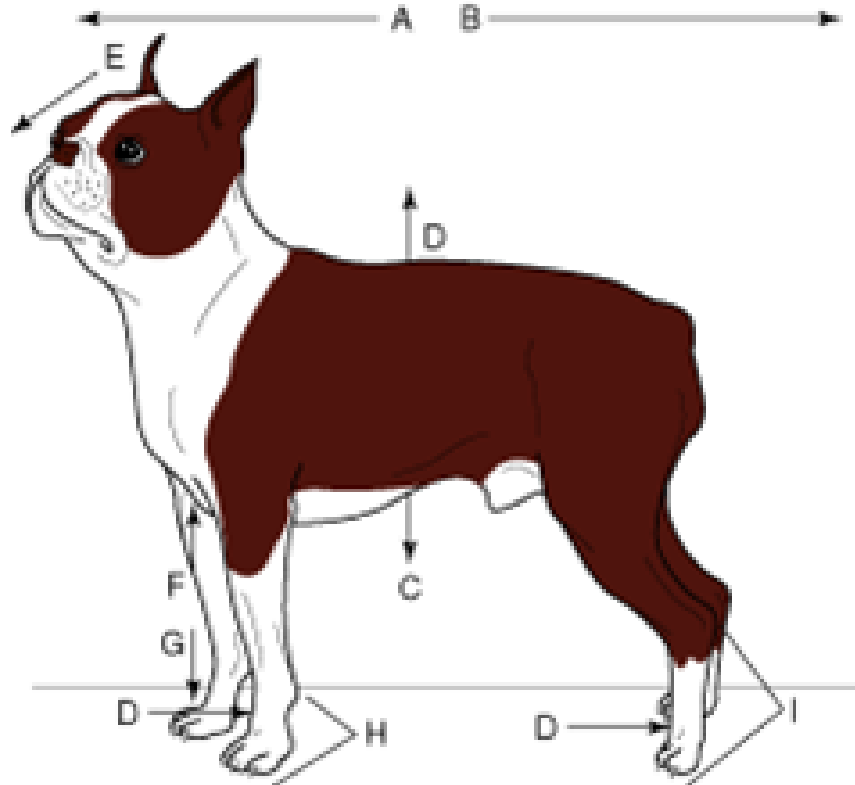


Positional Terms



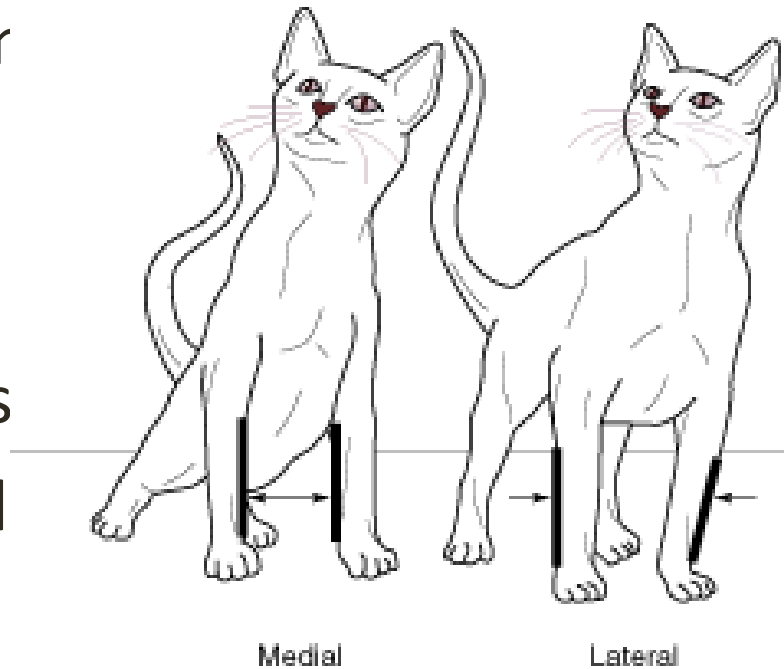
Asst. Prof. Dr. Wayne J. Fuller

In Position (Handout 3)

- Positional terms are important for accurately and concisely describing body locations and relationships of one body structure to another
- Terms like forward and backward, up and down, in and out, and side to side may not be clear enough descriptions for universal understanding

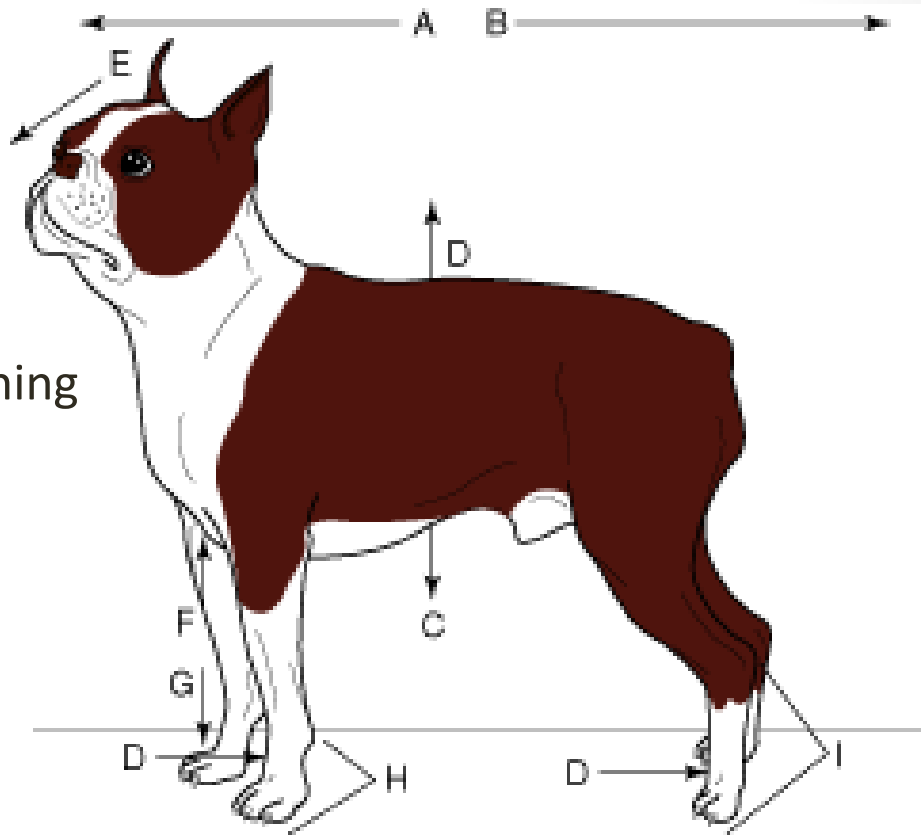
Body Directions

- Relative location of the whole body or an organ is described through the use of pairs of contrasting body direction terms
- Medial versus lateral
 - Medial is toward midline
 - Lateral is away from midline



Body Directions

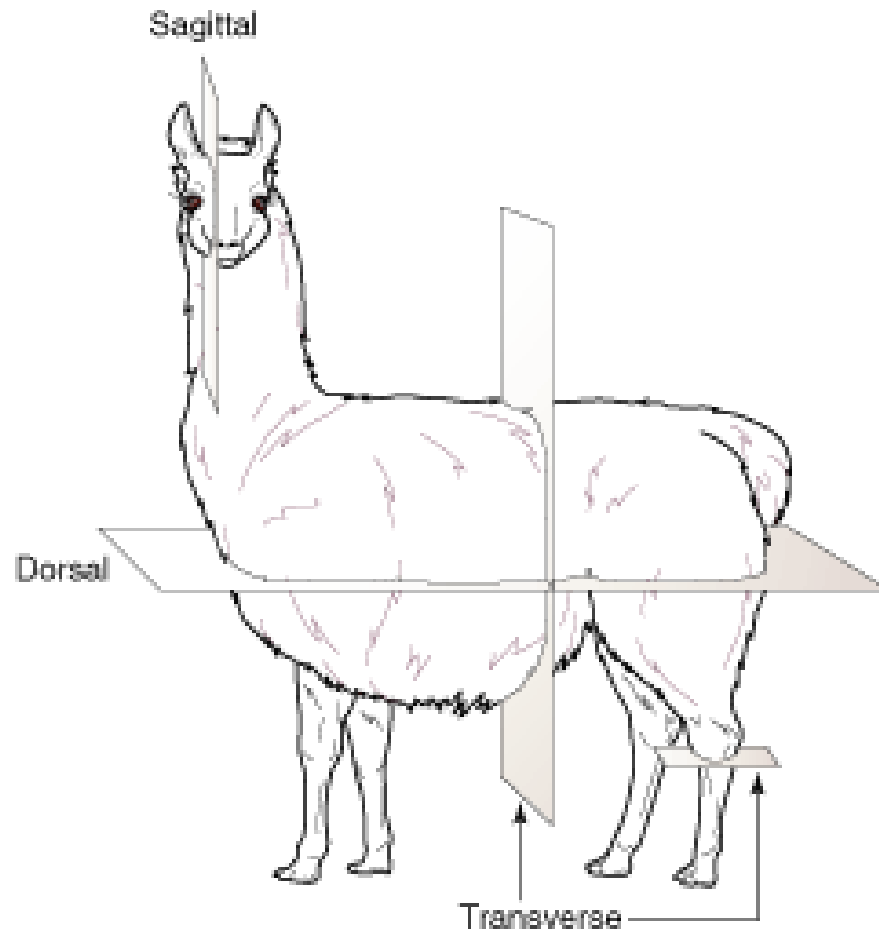
- ventral versus dorsal (C and D)
- cranial versus caudal (A and B)
- rostral versus caudal (E and B)
 - cephalic also means pertaining to the head
- proximal versus distal (F and G)
- palmar versus plantar (H and I)
- anterior versus posterior
- superior versus inferior
- superficial versus deep



Body Planes

- Planes are imaginary lines used descriptively to divide the body into sections
- Planes of the body include
 - midsagittal plane: plane that divides the body into equal right and left halves
 - also called the median plane and midline
 - sagittal plane: plane that divides the body into right and left parts
 - dorsal plane (frontal plane): plane that divides the body into dorsal (back) and ventral (belly) parts
 - also known as the frontal plane or coronal plane
 - transverse plane: plane that divides the body into cranial and caudal parts
 - also known as the horizontal plane or cross-sectional plane

Planes of the Body

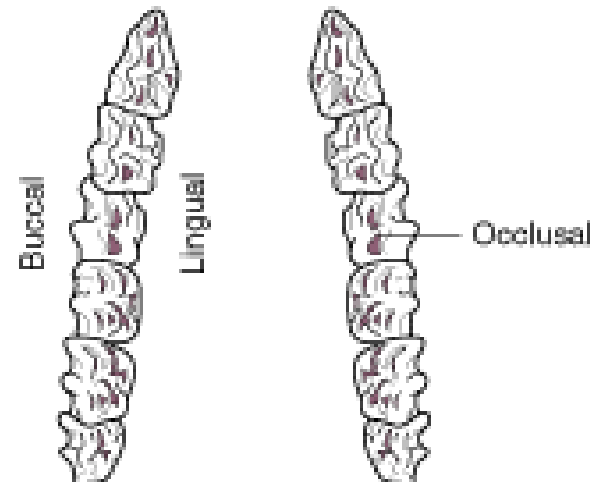
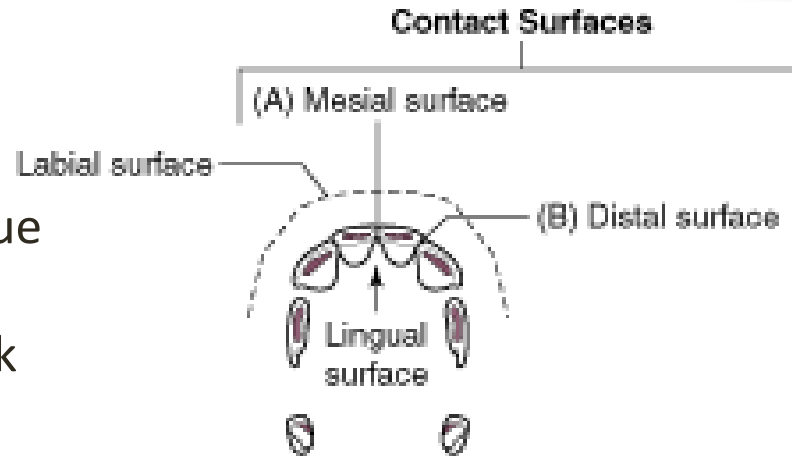


Study Terms

- The suffix -logy means the study of
- Terms with -logy are used to describe specific branches of study
- Anatomy
 - study of body structure
- Physiology
 - study of body function
- Pathology
 - study of the nature, causes, and development of abnormal conditions
- Etiology
 - study of disease

Mouth Terms

- Dental arcade
 - arrangement of teeth in mouth
- Lingual surface
 - aspect of the tooth facing tongue
- Buccal surface
 - aspect of the tooth facing cheek
- Occlusal surface
 - aspect of the teeth that meet when you chew
- Labial surface
 - tooth surface facing the lips
- Contact surface
 - aspects of the tooth that touch other teeth
 - mesial contact
 - distal contact



The Hole Truth

- A body cavity is a hole or hollow space within the body that contains and protects internal organs
- There are many body cavities within an animal
- Cranial cavity
 - contains the brain in the skull
- Spinal cavity
 - contains the spinal cord within the spinal column
- Thoracic cavity/chest cavity
 - contains the heart and lungs within the ribs and between the neck and diaphragm
- Pelvic cavity
 - contains the reproductive and some excretory organs formed by the pelvic bones
- Abdominal cavity
 - contains the major organs of digestion between the diaphragm and pelvic cavity
 - also known as the “peritoneal cavity”

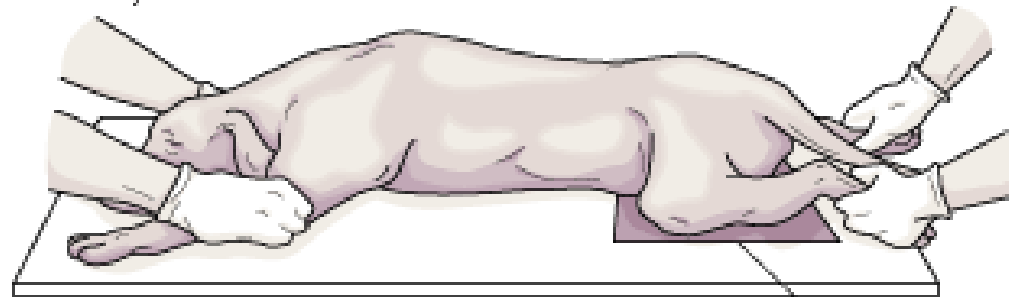
Lying Around

- The medical term for lying down is recumbent
- Lay, lie, laid and lying are confusing words in English.
- Recumbent positions are then described by the body part that is being laid upon
 - dorsal recumbency: lying on the back
 - ventral recumbency: lying on the belly
 - left lateral recumbency: lying on the left side
 - right lateral recumbency: lying on the right side

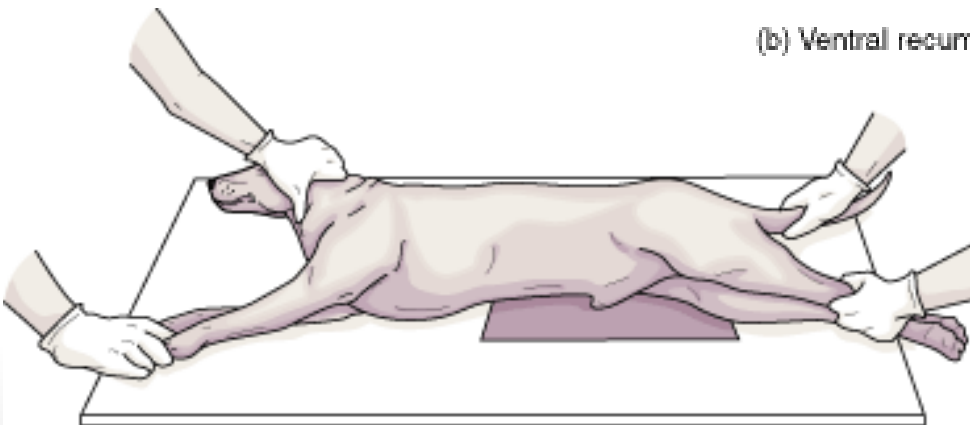
Recumbency Positions



(a) Dorsal recumbency



(b) Ventral recumbency/sternal recumbency



(c) Lateral recumbency

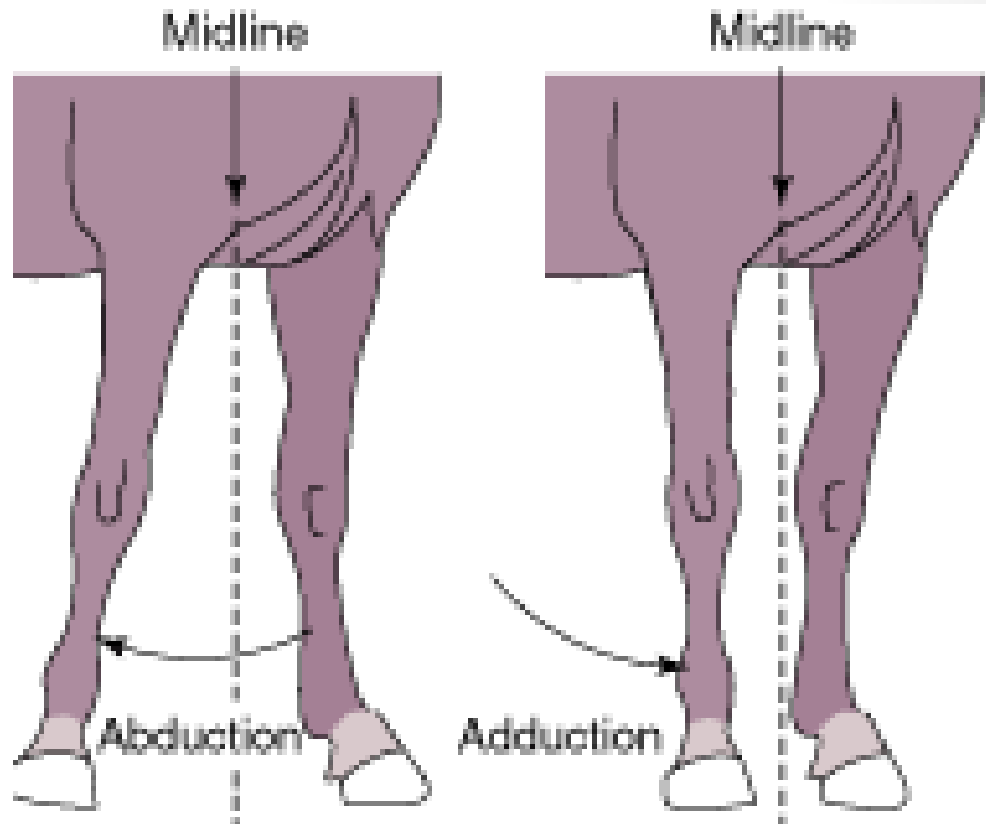
Movement Terms

- **Adduction**

- to move toward
midline
- think “add”

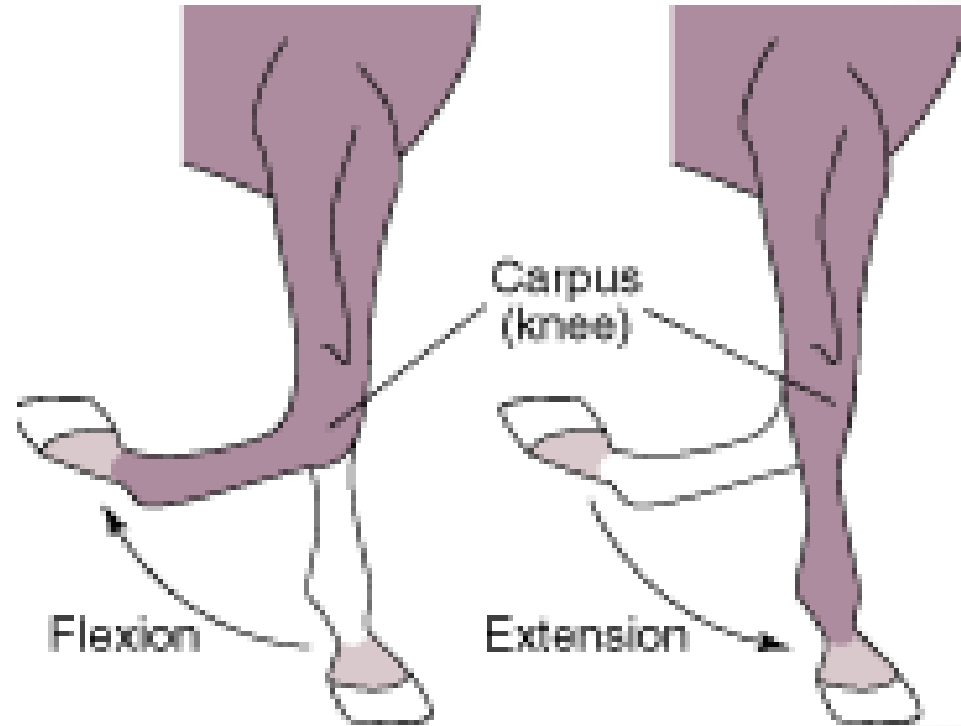
- **Abduction**

- to move away from
midline
- think child abduction
means to take the
child away



Movement Terms

- Flexion
 - bending a joint or reducing the angle between two bones
- Extension
 - straightening a joint or increasing the angle between two bones

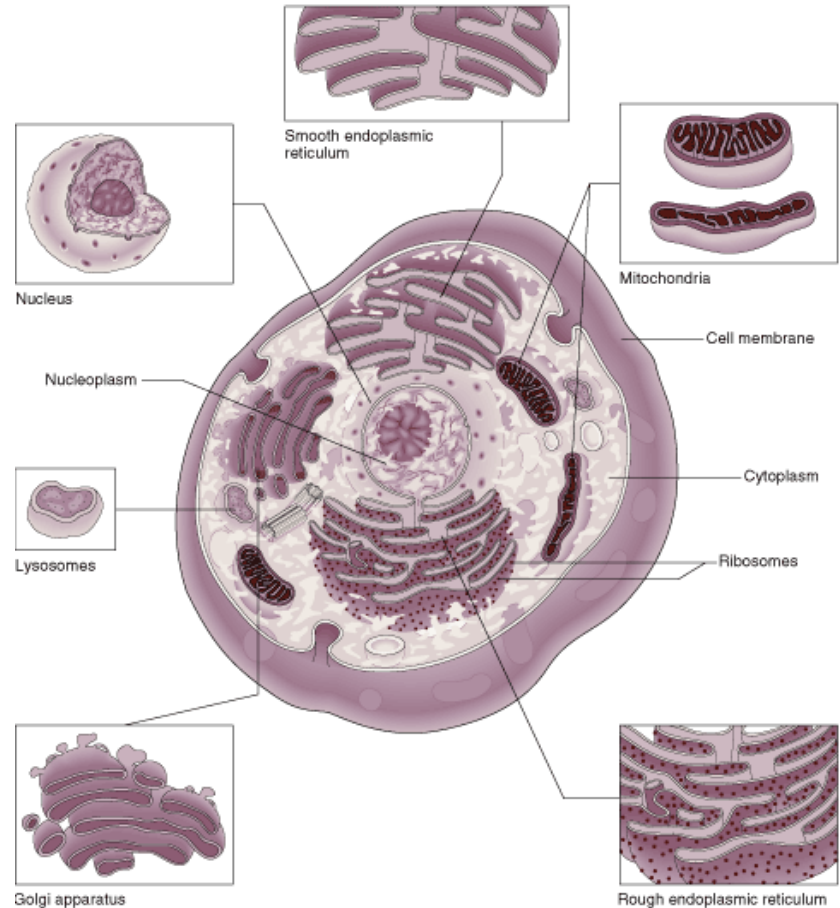


Flexion and extension of the carpus (knee)
of a horse

Hyperflexion and hyperextension when the joint is flexed or extended too far.

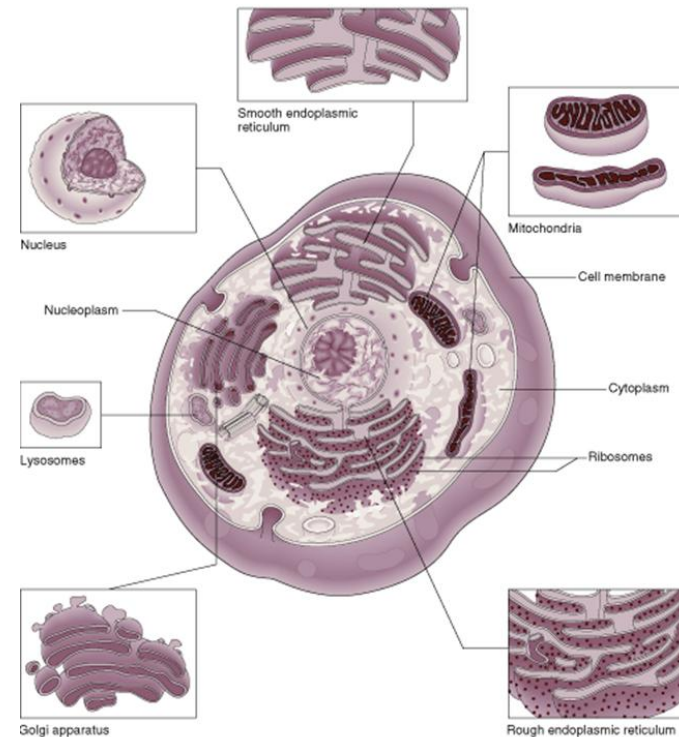
Cyte Terms

- Cells are the basic structural units of the body
 - Cyt/o means cell
 - Cytology is the study of cells
- Protoplasm consists of the cell membrane, cytoplasm and nucleus
 - -plasm means formative material of cells
 - Prot/o means first



Cell continued

- Cytoplasm is the material located within the cell membrane that is not part of the nucleus.
- The nucleus is the structure in a cell that contains the nucleoplasm, chromosomes and the surrounding membrane.
- Nucleoplasm is the material inside the nucleus and chromosomes are structures in the nucleus composed of DNA.



It's in the Genes

- Genetic means something that pertains to genes or heredity
- Genetic disorder is any disease or condition caused by defective genes
 - also known as hereditary disorders
- Congenital denotes something that is present at birth
 - a genetic defect may be congenital
- Anomaly is a deviation from what is regarded as normal

Grouping Things Together

- A tissue is a group of specialized cells that join together to perform a certain function
- Histology is the study of tissues
 - Hist/o means tissue; -logy means the study of
- There are four main tissue types
 - Epithelial (epithelium & endothelium)
 - Connective (bone, cartilage, tendons, adipose and ligaments)
 - Muscle (skeletal, smooth and cardiac)
 - Nervous

Pathology of Tissue

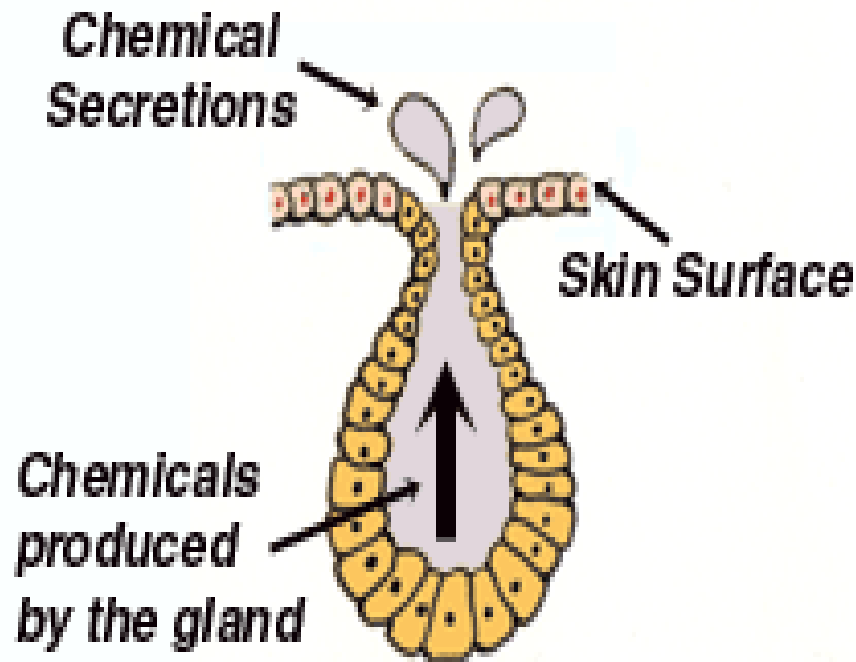
- Tissue can form normally or abnormally
- -plasia describes formation, development, and growth of tissue and cell numbers
- -trophy describes formation, development, and increased size of tissue and cells
- Prefixes used to describe tissue growth:
 - a- means without
 - hypo- means less than normal
 - hyper- means more than normal
 - dys- means bad/abnormal
 - ana- means change in structure and orientation
 - neo- means new

Tumor Terms

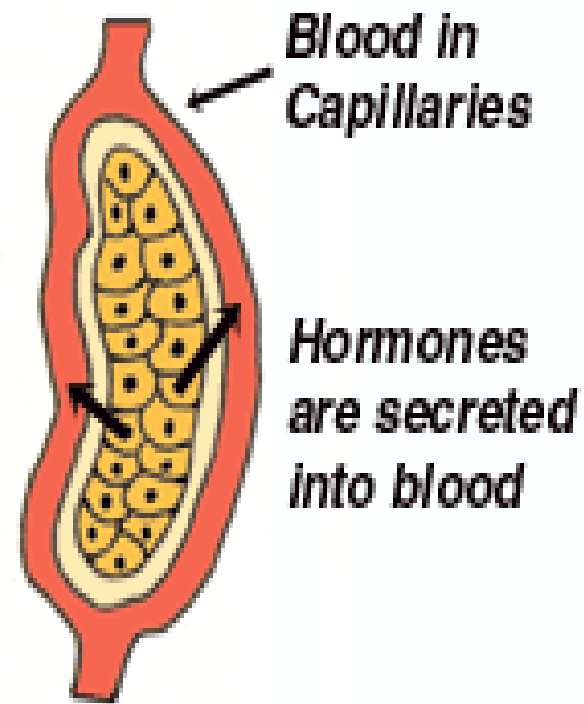
- Neoplasia = any abnormal growth of tissue in which multiplication of cells is uncontrolled, more rapid than normal, and progressive
 - tumor: a distinct mass of tissue formed from a neoplasm (-oma means tumor or neoplasm)
 - benign: not recurring
 - malignant: tending to spread and become life-threatening

Glands

- Glands are groups of specialized cells that secrete material used elsewhere in the body
 - aden/o means gland
 - Exocrine glands are glands that secrete material into ducts
 - Exo- means out, crine means to secrete
 - Endocrine glands are glands that secrete chemicals into the bloodstream for transportation to organs and other structures throughout the body
 - Endo- means within, crine means to secrete



Exocrine Gland



Endocrine Gland

Organs

- An organ is a part of the body that performs a special function or functions
- Each organ has its own combining form or forms
 - See text Table 2-2
- These combining forms usually have Latin or Greek origins
- If an organ has more than one combining form,
 - the Latin form is used to describe or modify something
 - Ren/o means kidney and is used in the terms renal disease and renal tubule
 - the Greek form is used to describe a pathological finding
 - Nephro/o means kidney and is used in the term nephritis and nephropathy

Number Prefixes

- Medical terms can be modified by the use of prefixes to assign number value, numerical order, or parts of a whole
- Refer to text Table 2-3 to see the Latin and Greek number prefixes for the numbers 1 through 10

Revision and Additional Prefixes and Suffixes

On the body:

- **Dorsal** - toward the ceiling or back
- **Ventral** - toward the floor or belly
- **Cranial/anterior** - toward the head
- **Caudal/posterior** - toward the butt rear
- **Lateral** - toward the side
- **Medial** - toward the midline

On the limbs:

- **Proximal** - toward the body
- **Distal** - away from the body
- **Palmar** - the front foot pads
- **Plantar** - the rear foot pads

On the head:

- **Rostral** – toward the nose
- **Caudal** – toward the tail/rear

Movement:

- **Flexion** - decreasing a joint's angle
- **Extension** - increasing a joint's angle

Suffixes

- ...ectomy – to remove _____
- ...itis – inflammation of _____
- ...ose – sugar
- ...ase – enzyme
- ...gen – producing
- ...tomy – incision
- ...emia – blood
- ...oid - resemble

Suffixes cont.

- ... oma – tumor/swelling
- ...osis/iasis – abnormal
- ...sclerosis – hardening
- ...plegia – paralysis
- ...rrhea – discharge
- ...rrhage – burst forth
- ...ptosis – prolapse/falling out
- ...spasm - contraction

Prefixes

- Hema/o... - having to do with the blood
- Hyper... - increased levels/activity of _____
- Hypo... - decreased levels/activity of _____
- Hetero... - different
- Homo... - the same
- Psuedo... - false
- Anti... - against
- Peri... - around

Prefixes cont.

- Tachy... - fast
- Mega/macro... - large
- Micro... - small
- Poly... - many
- Pan... - all
- Hap/mono... - one
- Di... - two
- A... - none/not
- Prim... - first
- Iso... - equal
- Ambi... - both
- Laevo... - left
- Dextro... - right
- Trans... - through
- Ex/o... - out
- End/o... - in

Prefixes cont.

- Brachy... - short
- Steno... - narrow
- Ortho... - straight
- Leuk/o... - white
- Cirrh/o... - yellow
- Chlor/o... - green
- Melan... - black
- Glauc/o... - grey

Misc terms

- Malignant – cancerous
- Benign – non-cancerous
- Local – in one specific location
- General – all over or in many locations
- Acute – rapid onset
- Palpate – to feel by hand
- Feces/fecal – excrement
- Triage – to collect information and assess the situation

Misc Terms

- Infectious – can be spread
- Diagnosis – to determine a cause for symptoms
- Prognosis – how it will turn out
- Congenital – with/upon/before birth
- Appendages – arms or legs
- Digits – fingers or toes
- Vestigial – non-functional
- Phalanges – fingers/toes

Review Exercise

- See review Exercise 2.