Basic Elements of a Medical Word

1. Word Root
2. Combining Form
3. Suffix
4. Prefix

These four parts of a word are known as ELEMENTS.

Word Root

- Main part or foundation of a word (term).
- All words have at least one word root.
- A word root may be used alone or combined with other elements to form a complete word.

IE: SPEAK (word root) + ER (suffix) = SPEAKER (complete word)

Notes:

- The word root usually refers to a body part.
- Some root words are derived from the Latin or Greek language.

Word Root Examples

- “dent” means tooth
- “dermat” means skin
- “cardi” means heart
- “gastr” means stomach
- “pancreat” means pancreas
- “Leuk” means white
- “hepat” means liver
- “Nephr” means kidney
- “Cyte” means cell

Combining Forms

- Correct pronunciation of medical words is important.
- In order to make the pronunciation of word roots easier, sometimes it is necessary to insert a vowel after the root.
- The combination of a word root and a vowel is known as a COMBINING FORM.

Example on Vowel Application

- Combining forms consist of a <u>combining vowel.</u>
- The combining vowel is usually an “o”, but others may be used.

i.e.: gastr / o / pronounced GASTRO.

Word root

Combining vowel

More than one root

- When a word has more than one root, a combining vowel is used to link the root to each other.

Slashes separate elements

IE: osteoarthritis oste/ o / arthr/ itis

Word root

Combining vowel

Word root

suffix

Word-Building System

- By understanding the meanings of word roots, one can determine the meaning of complex medical terms by putting together the smaller parts.

How to use the vowel in more than one root:

Leukocytopenia

Leuk/ o / cyte / o/ penia

Word Roots: Leuk / (white)

cyt / (cell)

Combining Vowel / o /

Suffix: / penia (decrease)

Suffixes

- A suffix is the few letters part added to the END of a word root or combining form to modify its meaning.

- By adding a suffix to the end of a word root, we create a noun or adjective with a different meaning.

Example

- A combining vowel is used between a word root and a suffix that begins with a consonant (not a vowel).
- This is to make pronunciation easier.

Word root: scler / (hardening)

Suffix: / derma (skin)

Term: Scler / o / derma (hardening of the skin)

Combining vowel

Consonant

(In linguistic function) a concept empirically determined as a phonological element in structural contrast with vowel, as the *b* of *be,* the *w* of *we;* the *y; s,* and *t* of *yeast,* etc.

- الحرف أو الصوت الساكن منسجم مع, متناغم الأصوات, متوافق, متماثل الأصوات, ملائم, منسجم

Meanings of certain suffixes

-al pertaining to dent/al
(pertaining to teeth)

-er one who speak/er
(one who speaks)

-able capable of being playable
(capable of being played)

Combining words

- oma = means (tumor)

Hematoma = (blood tumor)

NOTE: The element that comes before a suffix can either be a word root or combining form.

Other Suffixes examples

- The suffixes

-scope (instrument to view)
-rrhexis (rupture)
-rrhea (flow or discharge)

all begin with a consonant, therefore a combining vowel must be used between the word root and the suffix.

- The suffixes

-algia (pain)
-edema (swelling)
-uria (urine, urination)

These suffixes begin with a vowel, therefore a combining vowel is NOT used between the word root and the suffix.

REVIEW

- A combining vowel ***IS*** used to link one root to another root, and before a suffix that begins with a consonant.

- A combining vowel ***IS NOT*** used before a suffix that begins with a vowel.

Prefixes

- A prefix is a syllable or syllables placed BEFORE a word or word root to alter its meaning or create a new word.

Some prefixes:			Example
Hyper-	(excessive)	→	Hyperactive
Pre-	(before)	→	Prenatal
Post-	(after)	→	Postnatal
Homo-	(same)	→	Homosexual
Hetero-	(different)	→	Heterosexual
Hypo-	(under)	→	Hypoinsulinemia

Example on No combining Vowel

Hypoinsulinemia

Hypo / insulin / emia

Prefix — **LOW**

Word root — **INSULIN**

suffix — **BLOOD**

Notice that there is no combining vowel in this word because the prefix ends with a vowel and the suffix begins with a vowel.

Plurality

- To make a medical word plural (more than one), first look at the suffix.
- Then, choose the rule that changes the singular form to the plural form.
- Examples:

A vertebra is a bone in the spine. What is the plural of *vertebra*? vertebrae

Key Word Parts and Definitions

- **-ostomy**
  - the surgical creation of an artificial opening to the body surface (e.g. colostomy)
- **-otomy**
  - cutting, surgical incision (e.g. tracheotomy)
- **-plasty**
  - surgical repair (e.g. mammoplasty)
- **-rrhage**
  - Excessive Bleeding (e.g. Hemorrhage)

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Question

Intra- means within or inside.

True or False?

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Answer

True. *Intra-* means within or inside. *Inter-* means between or among.

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Question

Losing a large amount of blood in a short time is a:

a. hemorage
b. hemorrhage
c. hemorhage

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Answer

b. hemorrhage

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Question

The ilium is part of the hip bone, and the ileum is part of the small intestine.

True or False?

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Answer

True

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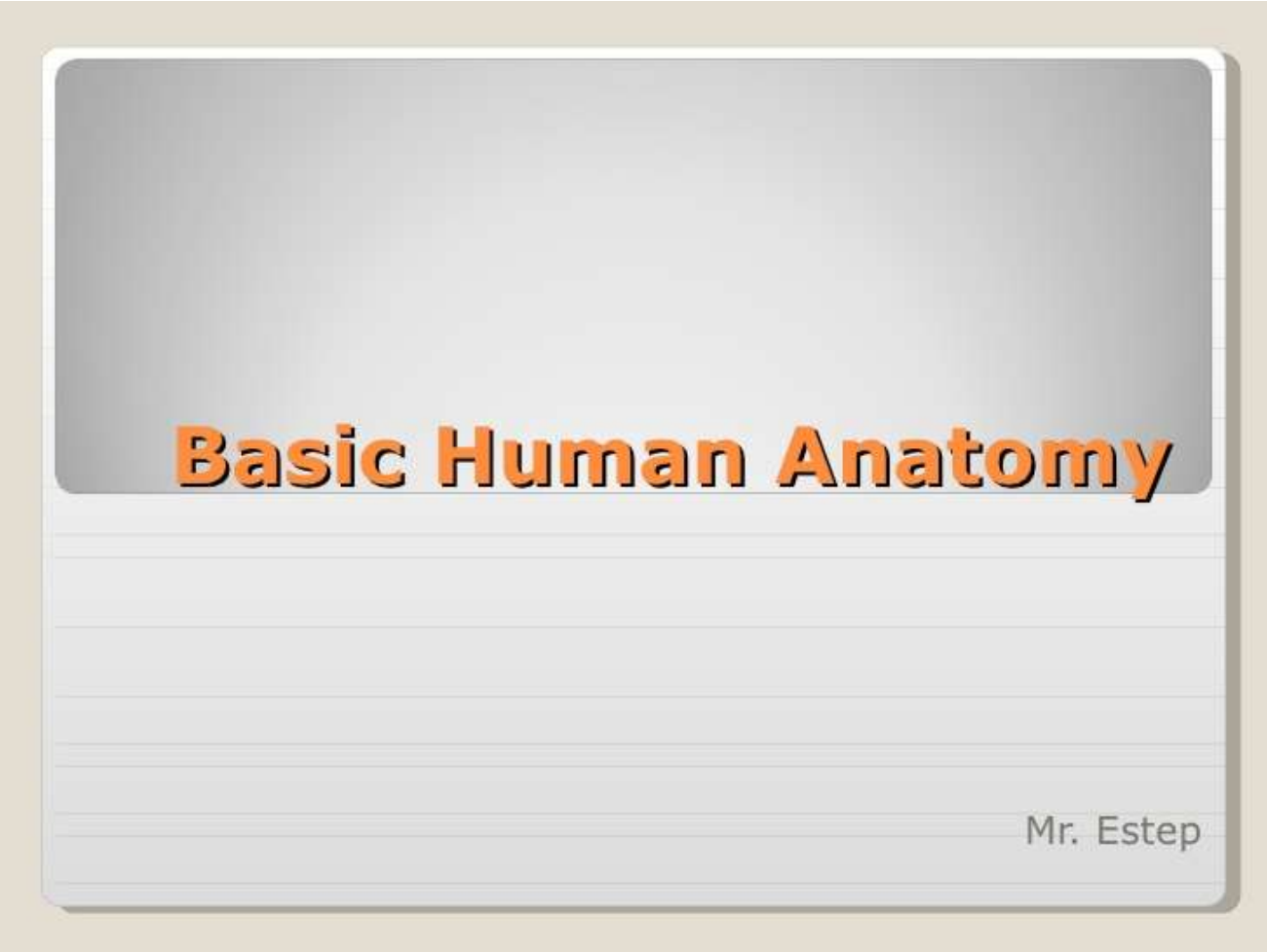
Human Anatomy



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Skelton

- Body is made up of bones
- Many different organs
- As well as the organ systems

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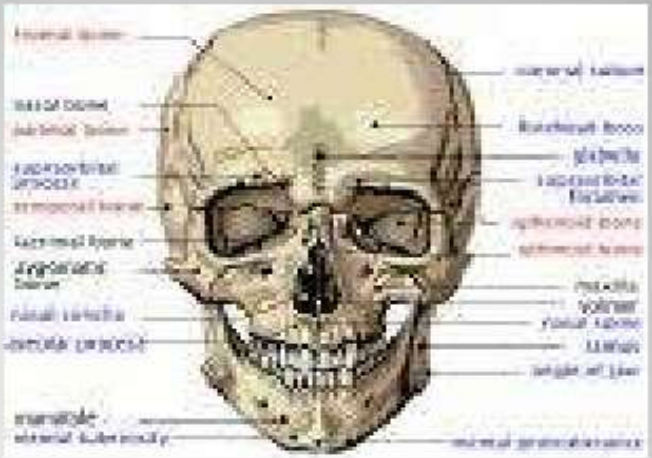
Basic Bones

- Basic Bones of the Human Body

- Skull
- Sternum
- 24 Ribs
- Radius
- Ulna



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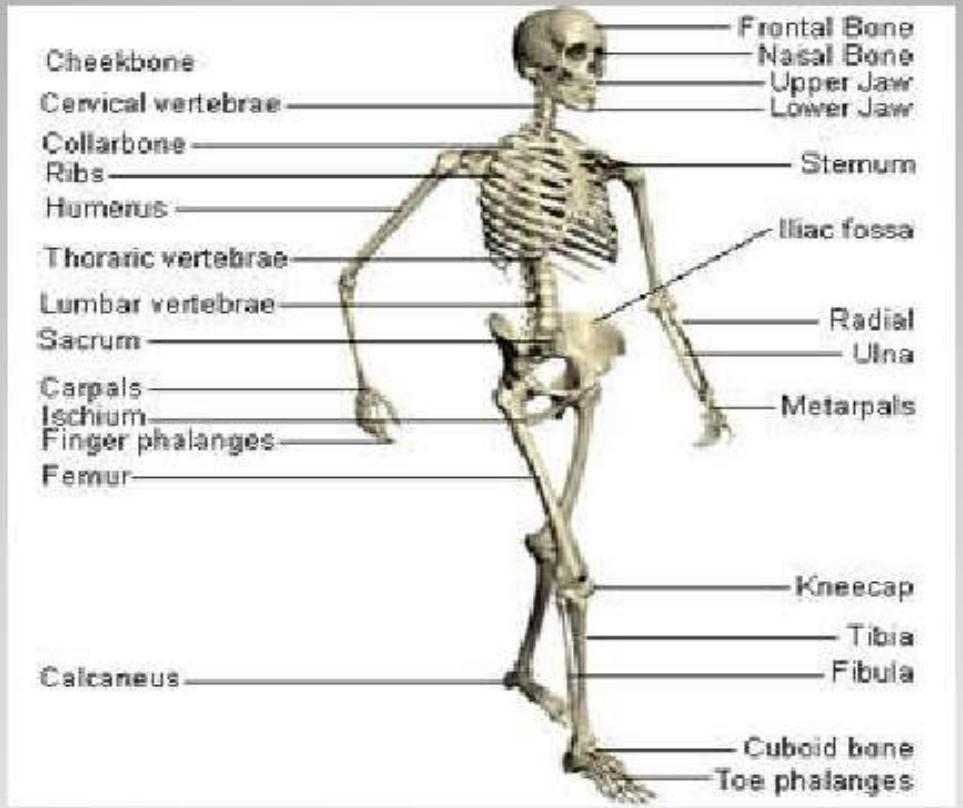
Skelton Parts



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Basic Organ System

- Basic Organ Systems of the Body

- Circulatory
- Nervous
- Digestive
- Respiratory
- Excretory

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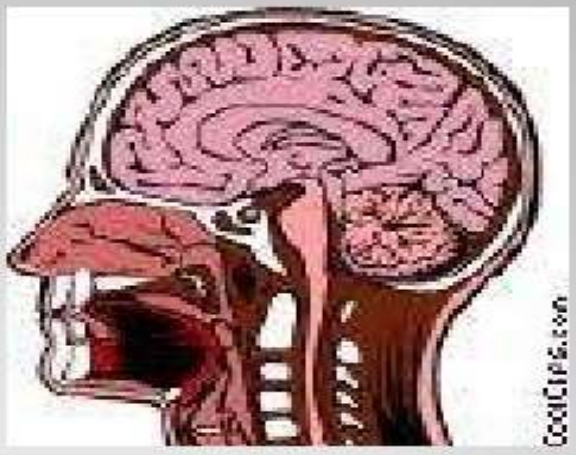
Basic Organs

- Basic Organs of the Body

- Brain
- Heart
- Kidney
- Lungs
- Intestine



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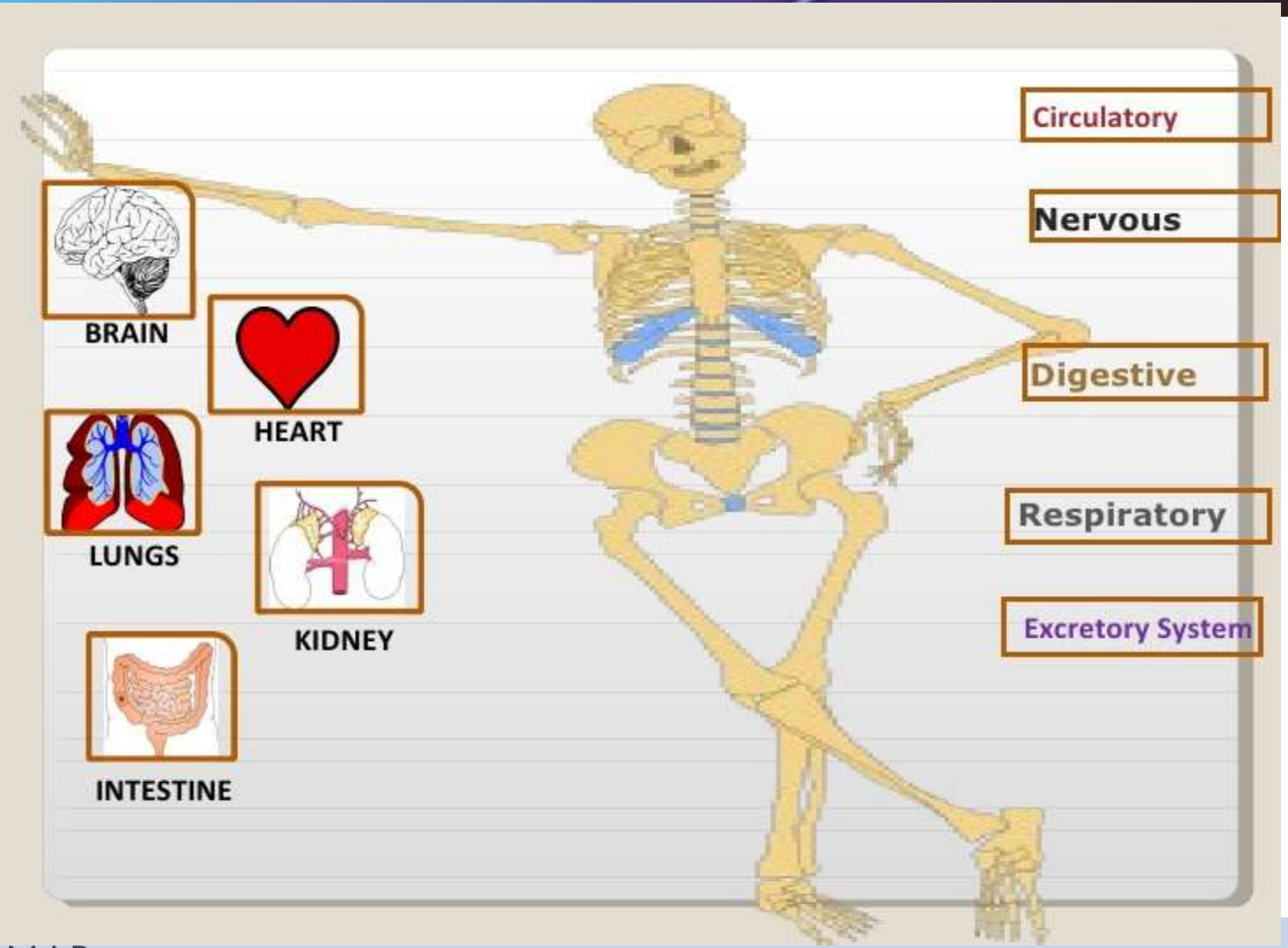
Basic Systems and Organs



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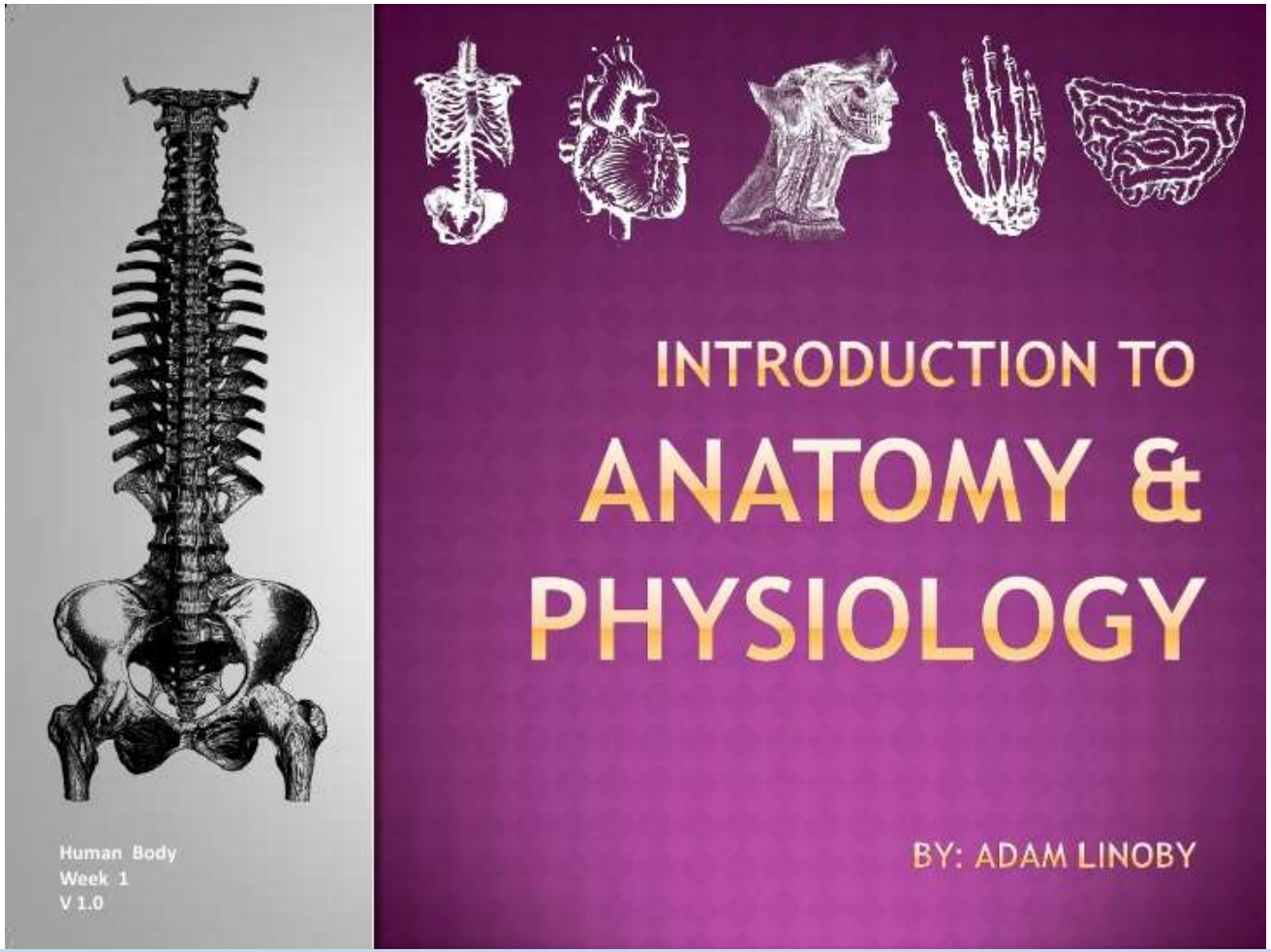
Anatomical Medical Terminology



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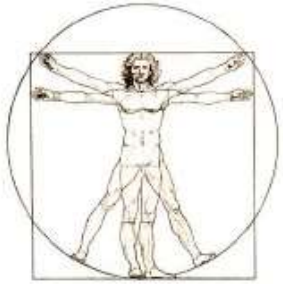
Medical Terminology (Macro- & Micro-)

INTRODUCTION

Anatomy



- Studies of the **body parts and their relationships.**

Macroscopic (Gross) Anatomy

- Study of **large body structure.**
  (e.g: **heart, lungs, kidneys… etc.**)
- **can be further divided into:**

  1. Regional Anatomy
     - all structures in **one particular region.**

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Medical Terminology (Macro- & Micro-)

Cont..

2. Systemic Anatomy
   - system by system

3. Surface Anatomy
   - study of internal body structures

Microscopic Anatomy

- Very small structures that cannot be seen with naked eyes.
  1. Cytology
     - Study of body cells

  2. Histology
     - Study of body tissues

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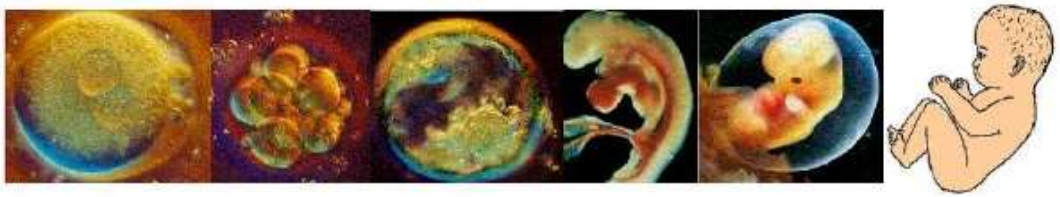
Medical Terminology

Cont..

Developmental Anatomy

- Structural changes to the body throughout lifespan.
  - 1. Embryology
    - Development which occur before birth



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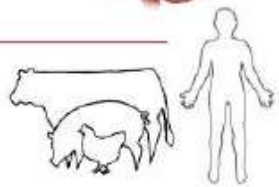
Physiological Medical Terminology

INTRODUCTION

Physiology

- Study of the body function
  - System Physiology
    - study of body system's function

  - Comparative Physiology
    - study of various characteristics of living organisms



  - Medical Physiology
    - study of physiological dysfunction and diseases

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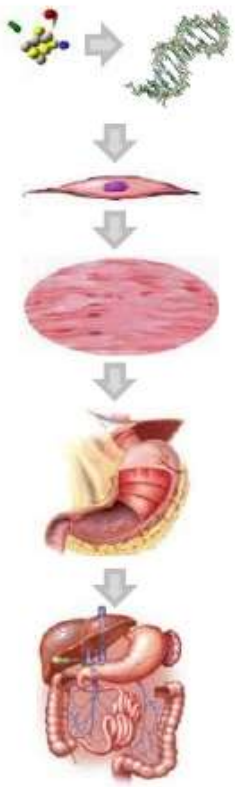
Structural Medical Terminology

STRUCTURAL LEVEL OF A BODY



Chemical
Combination of **atoms** to **form molecules**

Cell
Basic living units; have common characteristics, differ in structure and function

Tissue
A **group of cells with similar structure and function**: epithelial, connective, muscle, nervous

Organ
Two or more tissues work together perform one or more common function: eye, skin, stomach, heart.

Organ System
A group of organs of a common function: Skeletal, Muscular, Nervous, Endocrine, Cardiovascular, lymphatic, respiratory, digestive.

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SYSTEM OF THE BODY

- **Integumentary System**
  - External cover of the body (skin)
  - Protects deeper tissues from injury
  - Site of cutaneous, receptors, sweat and oil glands.

- **Skeletal System**
  - Bones
  - Protects and supports body organs

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Cont..

SYSTEM OF THE BODY

- **Muscular System**
  - muscles
  - produce body movement

- **Nervous System**
  - consist of brain, sensory receptor, nerves, spinal cord
  - control homeostasis by stimulating particular muscles contraction and glands secretion

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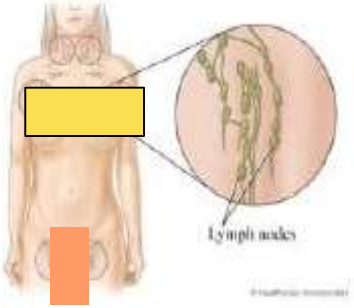
Cont..

SYSTEM OF THE BODY

- **Endocrine System**
  - Hormones secretion to regulate body processes.

- **Cardiovascular System**
  - Transport blood to the body

- **Lymphatic/Immune System**
  - Protect the body by attacking foreign substances entering body system



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Cont..

SYSTEM OF THE BODY

- **Respiratory System**
  - supply blood with oxygen and removing carbon dioxide.

- **Digestive System**
  - break down the food for absorption
  - indigestible food will be removed as feces

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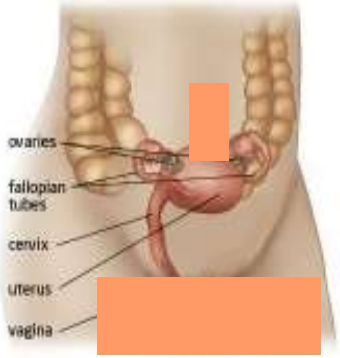
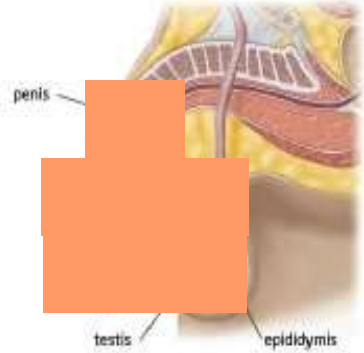
Cont..

SYSTEM OF THE BODY

- **Urinary System**
  - regulation of water, electrolytes and acid-base balance in the body.

- **Reproductive System**
  - production of babies





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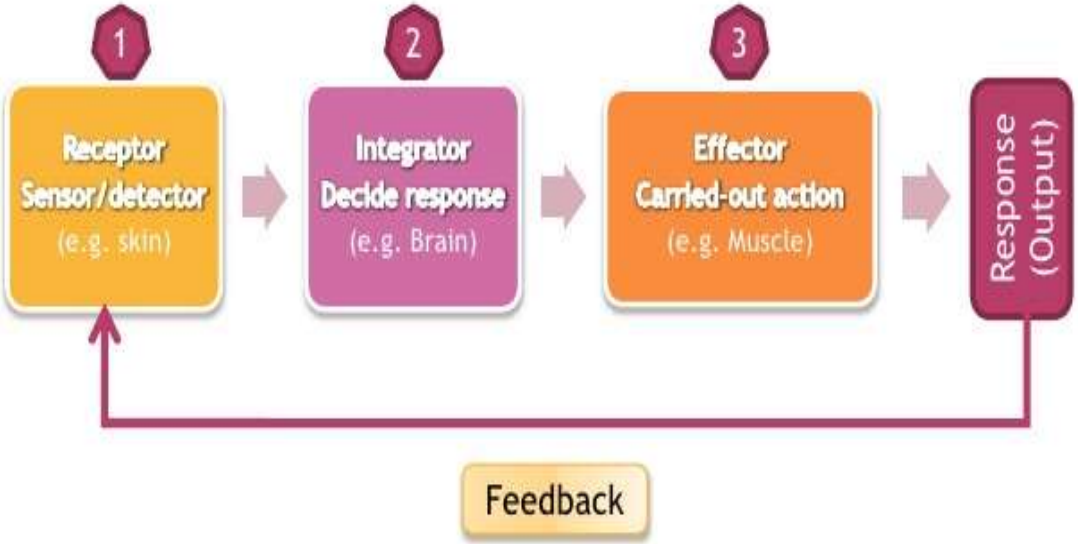
HOMEOSTASIS

- Body's ability to maintain relatively stable internal conditions although the external environment keep changing…
- 3 components:-



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DIRECTIONAL TERMS

- Explain and locate precisely where the body structure and it's relation to another.

TERM	DEFINITION
Superior (cranial)	Toward head end, above
Inferior (caudal)	Away head end, below
Anterior (ventral)	Front of the body
Posterior (dorsal)	Behind the body
Medial	Midline of the body, inner
Lateral	Away from midline, outer
Intermediate	Between medial and lateral
Proximal	Close to body origin
Distal	Away from body origin
Superficial (external)	Toward body surface
Deep (internal)	Away body surface

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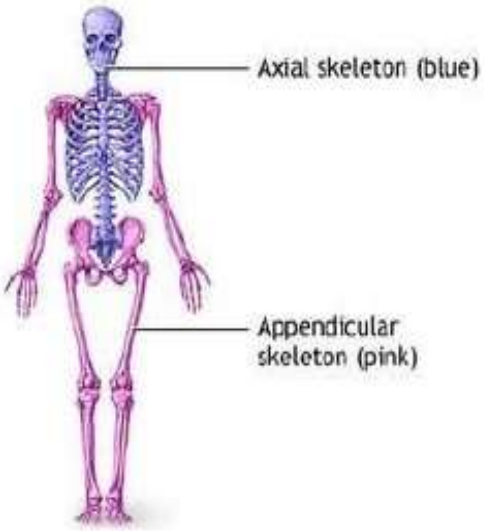
REGIONAL TERMS

- **Axial Region**
  - axis of our body
  - comprise of three parts: head, neck and trunk



- **Perpendicular Region**
  - limbs, or appendages
  - body parts that attached to the axis.

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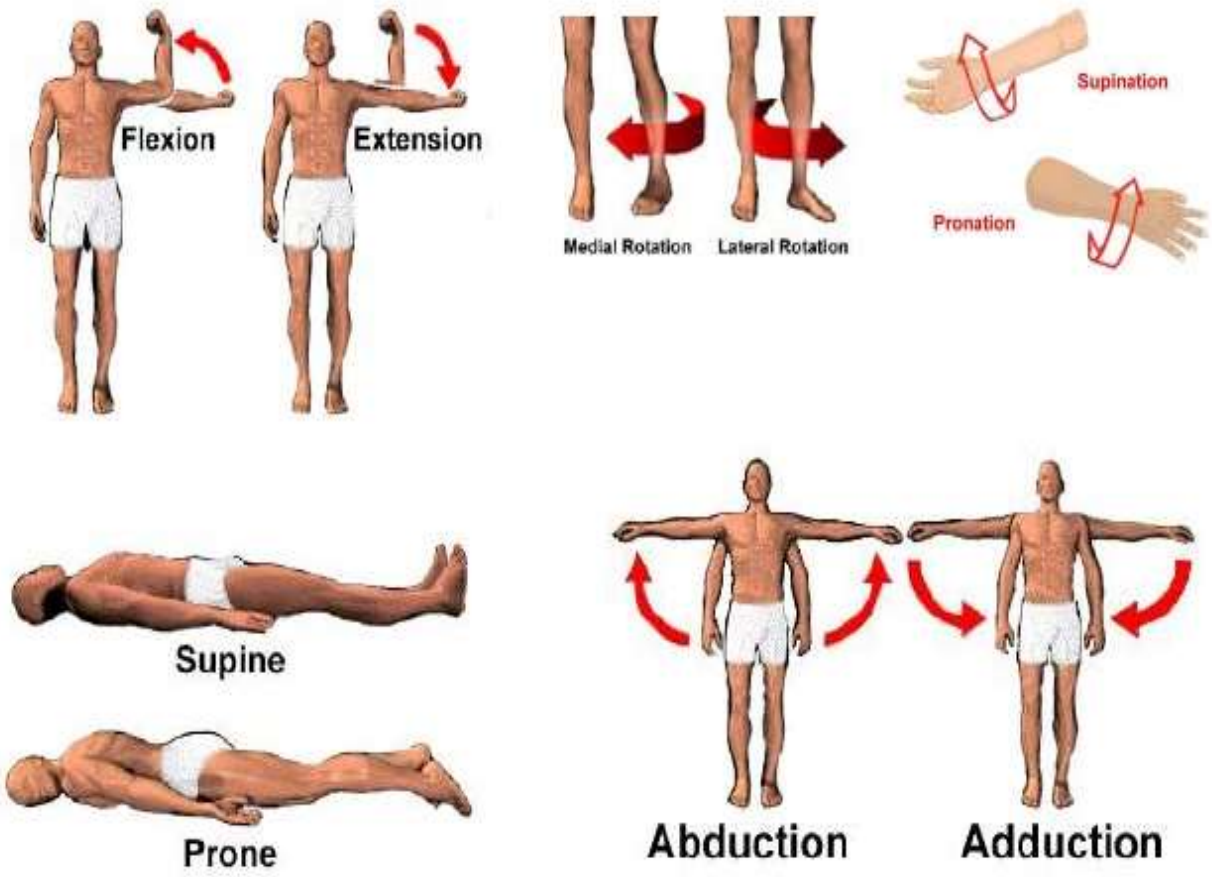
TERMS OF MOTION



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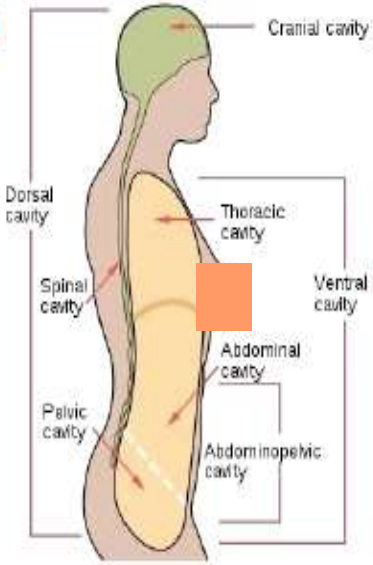
BODY CAVITY

- **Dorsal Cavity** - protects nervous system
  - two subdivisions:-
  1. Cranial Cavity - brain
  2. Spinal Cavity - spinal cord



- **Ventral Cavity** - houses visceral organs
  - two subdivisions:-
  1. Thoracic Cavity - pleural (lungs), mediastinum (heart, esophagus, trachea, etc…)
  2. Abdominopelvic cavity - abdominal (stomach, intestines, spleen, liver, etc…), pelvic (bladder, reproductive system, rectum)

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