



MEDICAL TERMINOLOGY



Lecture 1

By

Dr. Muna Adnan

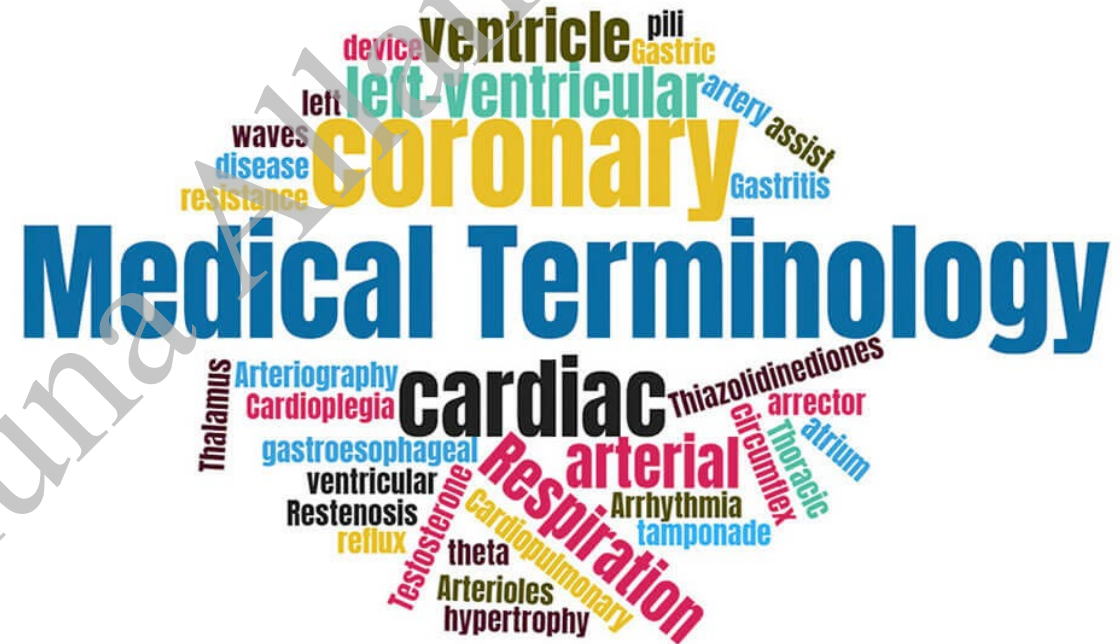
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Course goals

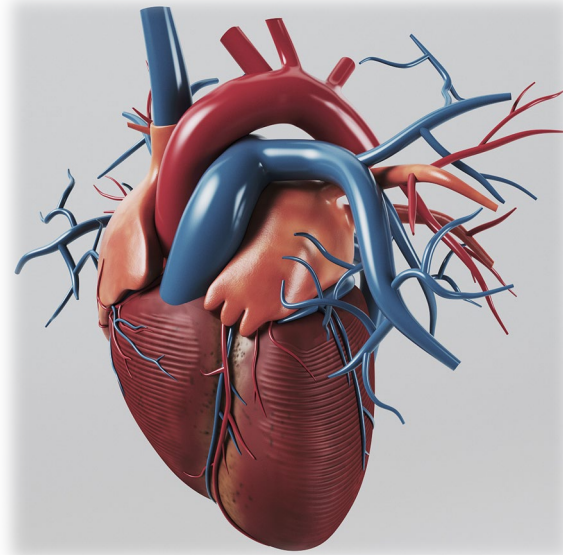
- ✓ Apply basic principles of medical word building.
- ✓ Correctly pronounce medical terms.
- ✓ Define common medical terms.
- ✓ Relate common medical terms to human anatomy and physiology; common disease states, and diagnostic tests.

Course contents

- Introduction to medical terminology
- Prefixes
- Suffixes
- Skeletal system1
- Skeletal system2
- Muscles and joints
- Respiratory system
- Gastro intestinal system1
- Gastro intestinal system2
- Cardiovascular system
- Blood and lymphatic system
- Integumentary system
- Plural and singular in medical terms



DEFINITION



- ***Medical Terminology?***
- Medical terminology is a special vocabulary used by health care professionals for effective and accurate communication.
- Because it is based mainly on Greek and Latin words, medical terminology is consistent and uniform throughout the world.

Why Knowing Medical Terminology is Important?



- The object of medical terminology is to create a standardized language.
- This language allows medical professionals to communicate more effectively. It helps workers save time by ensuring that they do not have to describe in plain English complicated medical issues and concentrate on patient care.
- Another goal of Medical Terminology is to help minimize mistakes from poor communication or poor documentation, which can make a big difference in a patient's life.

ELEMENTS OF MEDICAL TERMS



Medical term forms

- Medical terms Are built from Word Parts.

Example: Cardiogram

Words part	Example(meaning)
Word Root	Cardiogram (record of the heart)
Prefix	Pericardium (around the heart)
Suffix	Carditis (inflammation of the heart)
Combining form	Cardiomyopathy (heart muscle disease)

PREFIXES

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

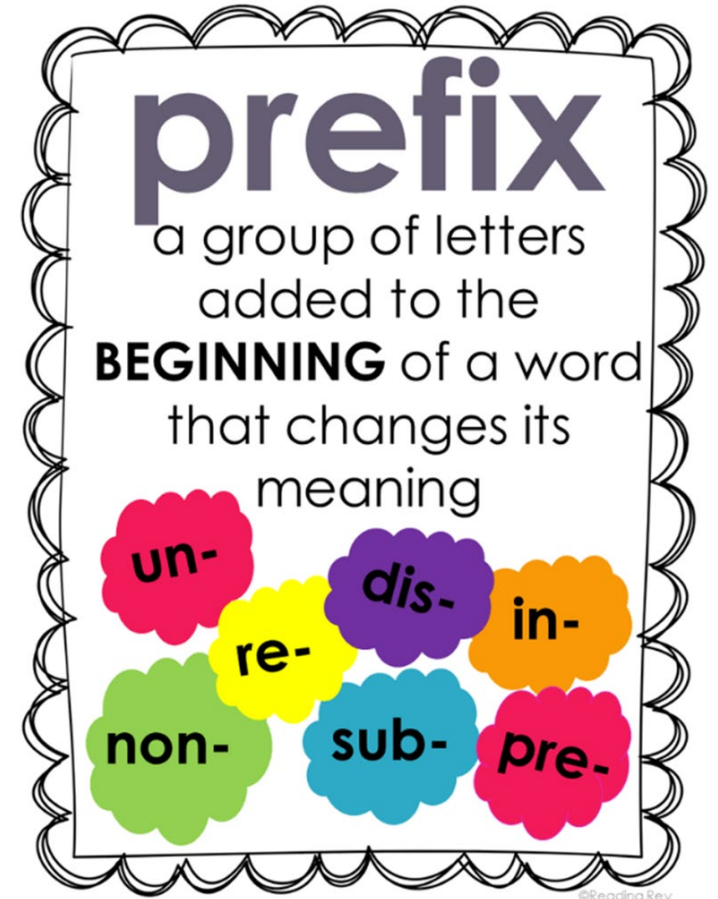
Some prefixes:

Example

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

Prefix can be categorize as below:

- Negative and positive.
- Size.
- Location.
- Time and order.
- Number.



Negative prefixes

Prefix	Example
Un	Unaccepted
In	Incomplete
Il	Illegal
Ir	Irregular
Dis	Disagree
Mis	Misunderstanding
Anti	Antihistamine

Related to the size

Prefix	Meaning	Examples
Semi	half	Semi-conductor
Equi	equal	Equidistant
Mini	small	Mini-bus
Micro	very small	Microbiology
Mega	large, great	Megabyte
Macro	large, great	Macroscope

Related with color

Prefix	Meaning	Examples
Leuko	White	Leukocyte
Erythro	Red	Erythrocyte
Cyan	Blue	Cyanobacteria

Related to the location

Prefix	Meaning	Examples
Inter	between, among	Interface, Inter-active
Intra	within, inside	Intranet
Super	over	Super-sonic
Trans	across	Transmit, Transfer
Ex	out	Exclude, Extrinsic
Sub	under	Sub-hepatic
Infra	below	infrared, infrastructure
Peri	around	Peripheral

Related to the numbers

Prefix	Meaning	Examples
Semi	half	Semicircle
Mono	one	Monochromic
Bi	Two	Binary
Tri	three	Triangle
Quad	four	Quadruple
Penta	five	Pentagon
Hexa	six	Hexadecimal
Sept	seven	September
Multi	many	Multidivisional

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)

Note: The word root usually refers to a body part.

WORD ROOT EXAMPLES

Latin or Greek	English
Term(in)	Word, idea, concept
Bio	Life
Cardi	heart
Dermato	skin
Neuro	nerve
Patho	disease
Nephro	renal
Polmun	lung
Histolo	Micro or 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 combining vowel.
- The combining vowel is usually an “o”, but others may be used.

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

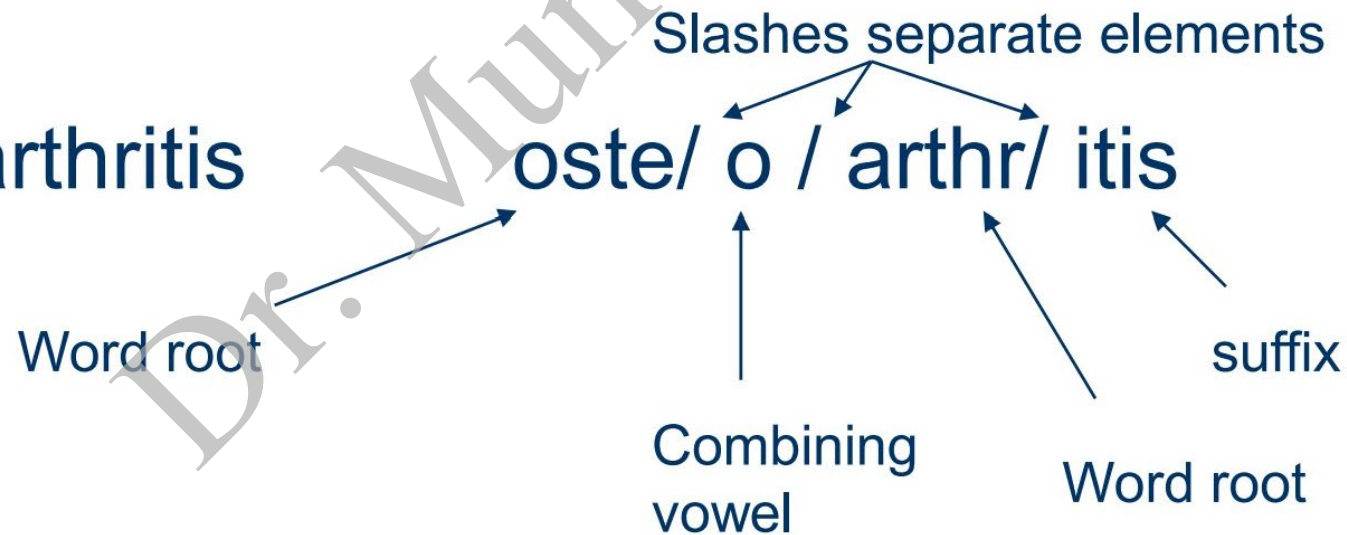
Word root

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.

IE: osteoarthritis



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)

A close-up photograph of pink cherry blossoms in full bloom, set against a dark, blurred background. The flowers are delicate with five petals each, and some buds are still closed. A semi-transparent dark horizontal band runs across the middle of the image, containing the text 'THANK YOU FOR LISTENING' in white, uppercase, sans-serif font. A diagonal watermark 'Dr. Munir Allami' is visible across the image.

THANK YOU FOR LISTENING



SUFFIXES

Lecture2

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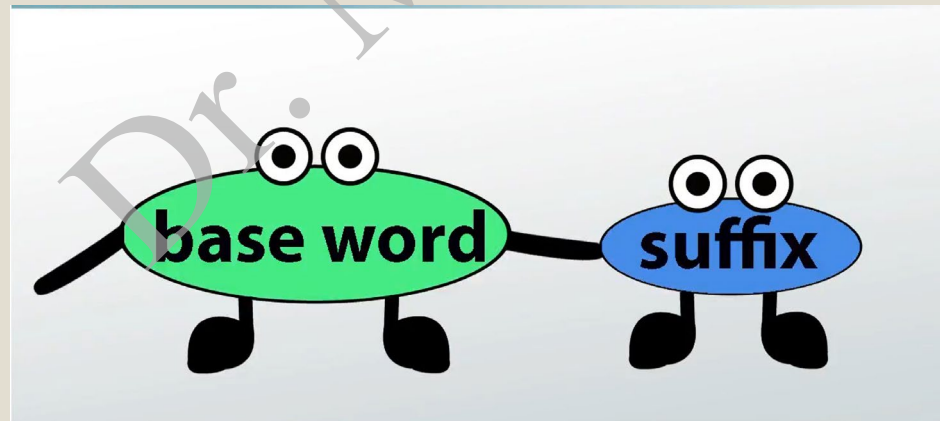
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Suffixes

- 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.

Meanings of certain suffixes

- -al belongs to dent/al (belongs to teeth).
- -er one who speak speak/er (one who speaks).
- -able able of being playable (able of being played).



Other Suffixes examples

- -scope (instrument to view) e.g ?
- -rrhexis (rupture) e.g Splenorrhexis
- -rrhea (flow or discharge) e.g Diarrhea
- All begin with a **consonant**, therefore a **combining vowel** must be used between the word root and the suffix.

The suffixes

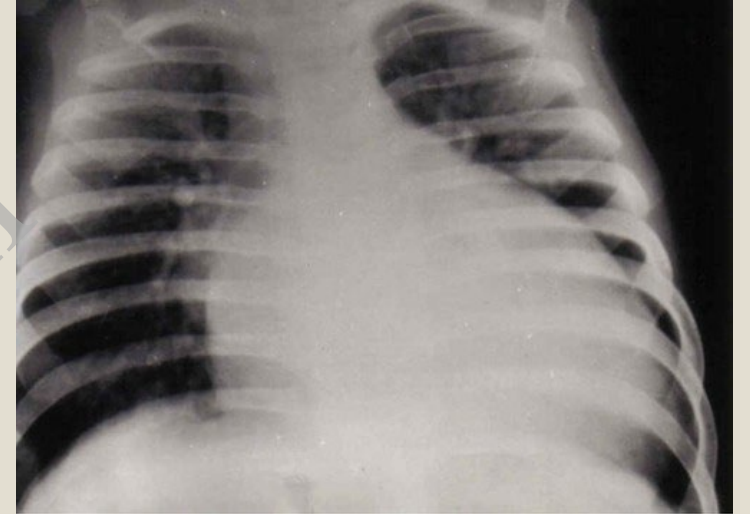
- -algia (pain) → myalgia
- -edema (swelling) → (pulmonary edema)
- -uria (presence of a specified substance in urine) → (albuminuria)
- These suffixes begin with a **vowel**, therefore a **combining vowel** is **NOT used between the word root and the suffix.**

Examples

- Scopy (to look at)
 - Endoscopy = look at the inside
 - Colonoscopy. = look at the inside of colon
 - Gastroscope = look at the inside of Stomach

Examples

- Megaly (abnormal enlargement)
- Cardiomegaly = enlargement of Heart
- Hepatomegaly = enlargement of Liver
- Splenomegaly = enlargement of Spleen







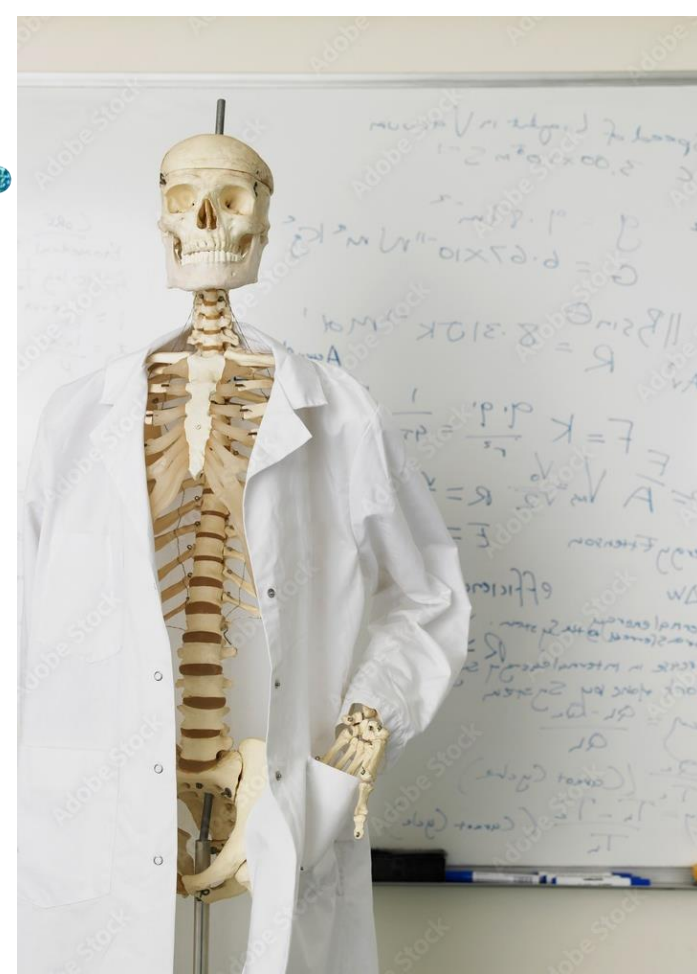
Skeletal system part 1

Lecture 3

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Aims

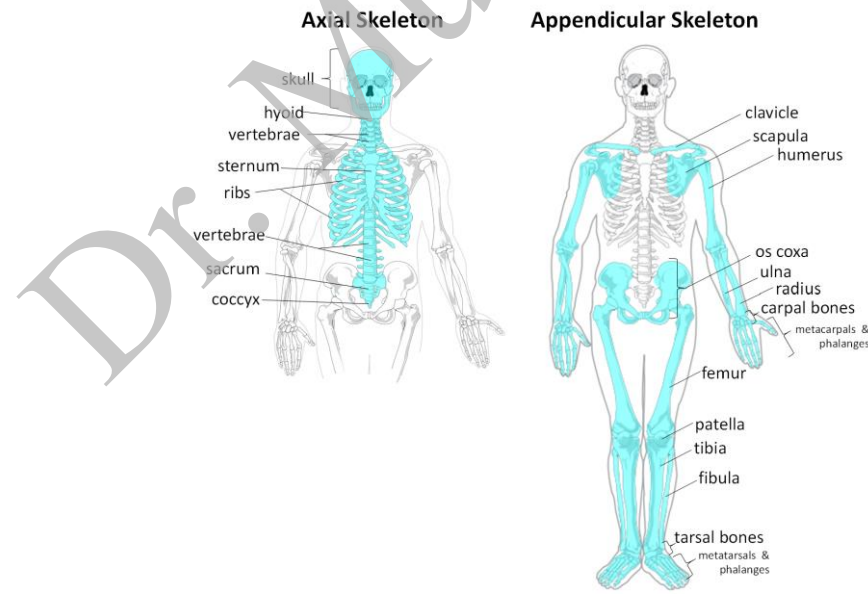
- To understand medical terms used in Skeletal system.
- To know various symptoms, signs, medical conditions affecting the system, diagnostic, different therapeutic procedures, and operative procedures.

Skeletal system

- Skeletal system: is the body system that consists of bones, associated cartilages, and joints.
- Its function is to:
 - Support, protect the body and its internal organs.
 - produce blood cell .
 - store and release minerals.

Skeleton parts

- The skeleton is consist of two groups:-
- the axial bones: made up of the bones in the head, neck, back and chest.
- Appendicular bones: include the bones in your shoulders, pelvis and limbs, including your arms, hands, legs and feet.



- The axial skeleton of the adult forms the vertical, central axis of the body. It protects the brain, spinal cord, heart, and lungs.

It consists of

- The skull.
- The vertebral column : consists of 24 bones, each called a vertebra.
- the sacrum and coccyx (latin: cuckoo).
- The thoracic cage includes the 12 pairs of ribs, and the sternum, the flattened bone of the anterior chest

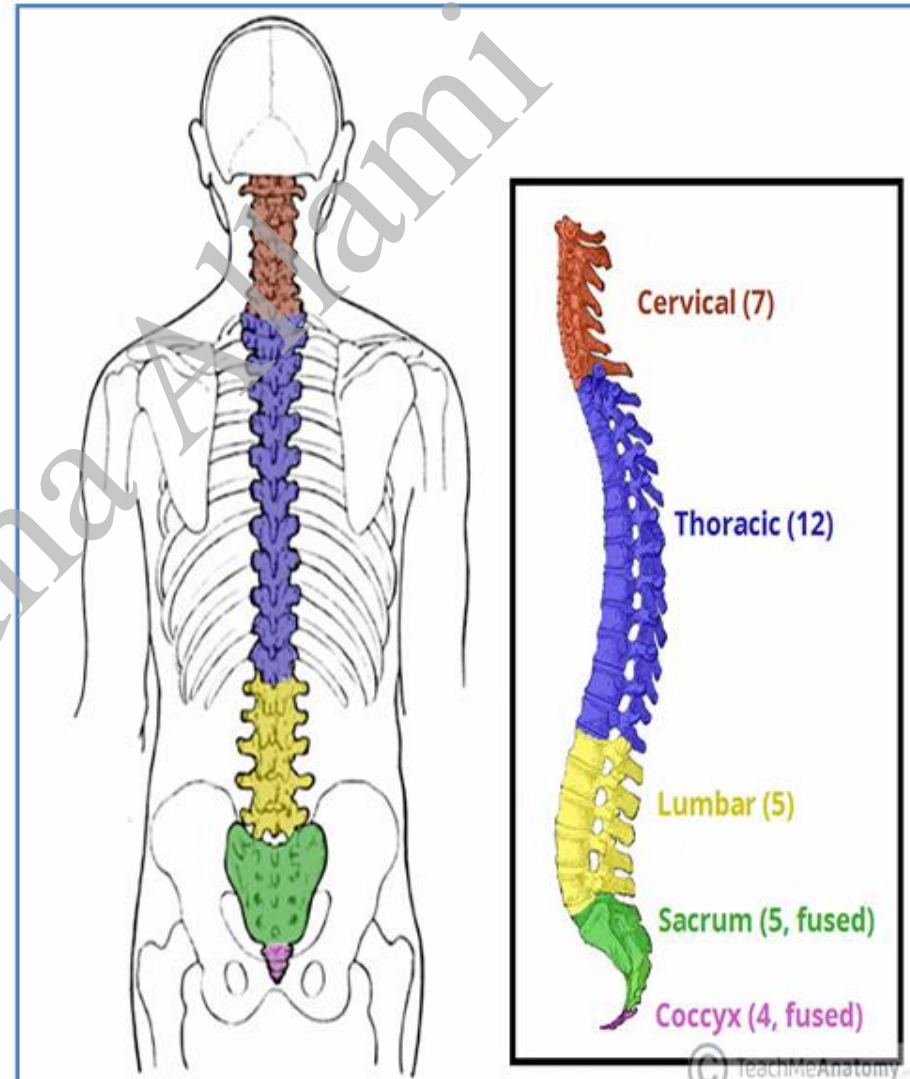


Skull

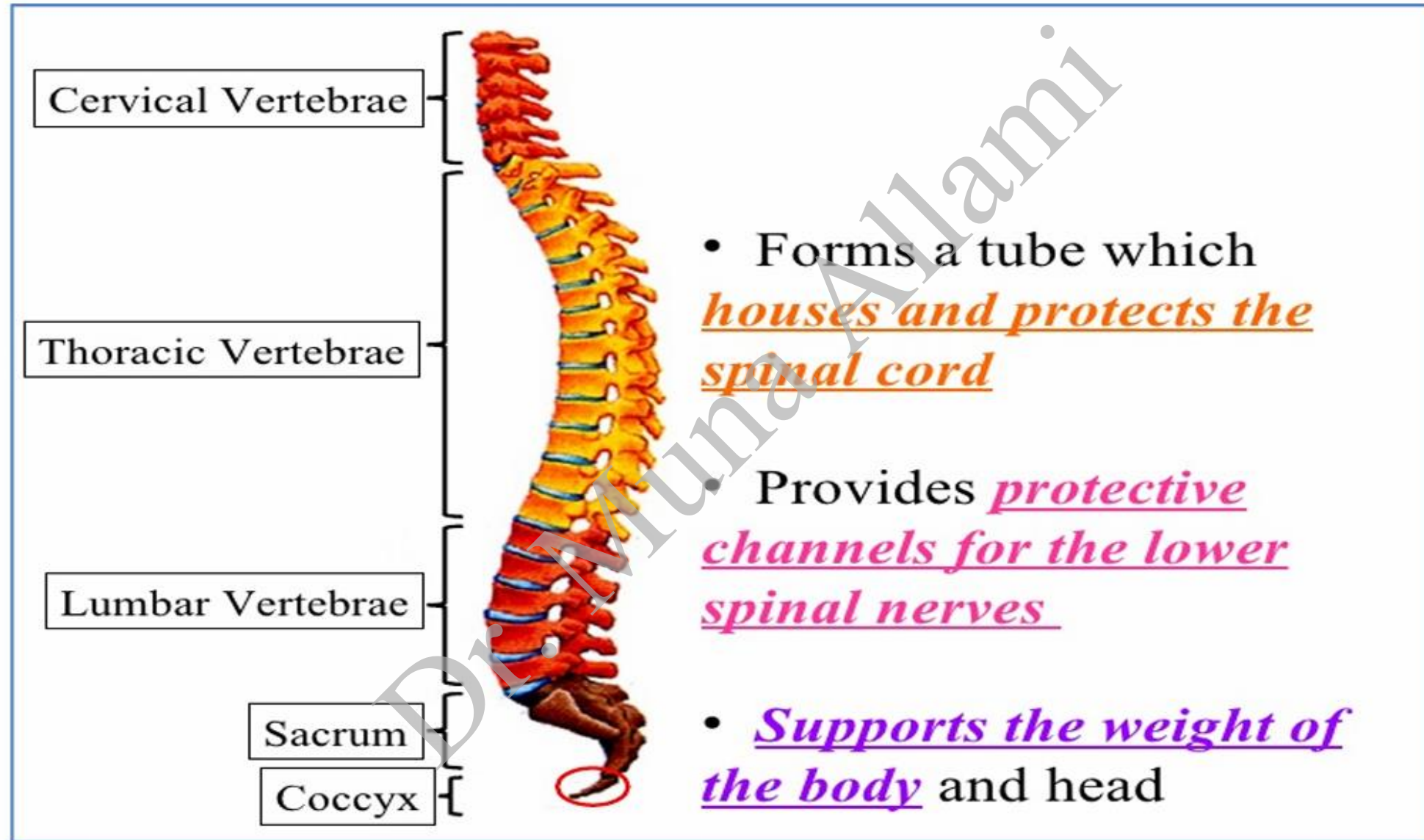
- The cranium (crani(o)-um) or skull supports the face and protects the brain.
- It is subdivided into
 - the bones of the skull
 - the bones of the face

The vertebral column

- The vertebral column consists of **24** bones, each called a **vertebra**, plus the **sacrum** and **coccyx**.

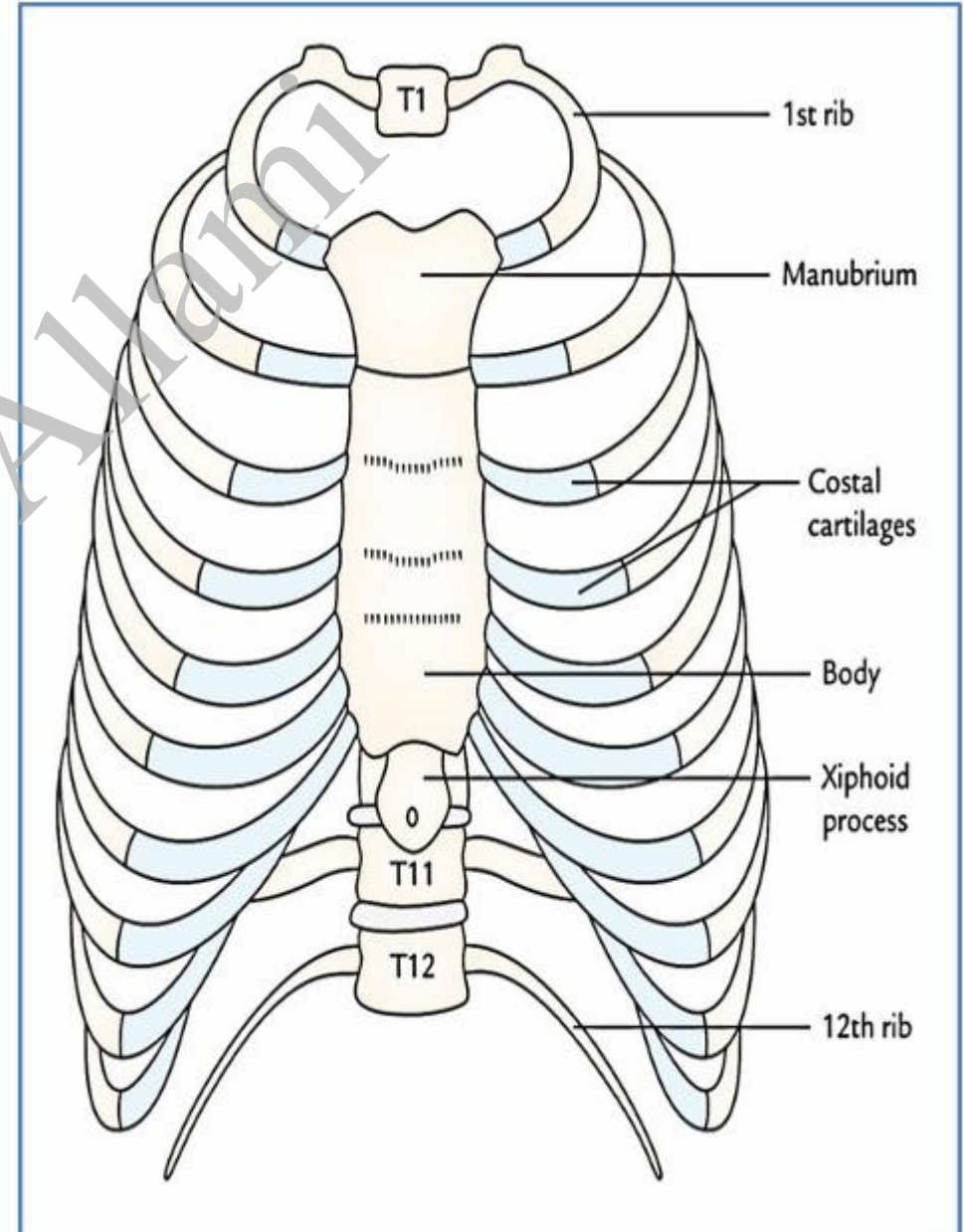


Functions of the vertebral column



The thoracic cage

- The thoracic cage (rib cage) forms **the thorax (chest) portion** of the body. It consists of the **12 pairs of ribs** with their costal cartilages and **the sternum**. The ribs are anchored posteriorly to the 12 thoracic vertebrae (T1–T12). The thoracic cage **protects the heart and lungs**.



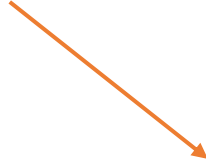
Terminology

Example

Medical Terms	Root	Root meaning	Suffix	Suffix meaning	Whole meaning
Osteoma	Osteo	Bone	oma	Tumour	benign tumour of the bone
Arthralgia	Arthra	joint	algia	pain	Pain in the joint

Examples:

- Periosteum



Prefix + Root word + Suffix

- Peri = around oste = bone um = tissue

Periosteum = tissue around the bone

Osteoarthritis

Oste = bone O arthr = joint itis = inflammation

Root vowel Root suffix

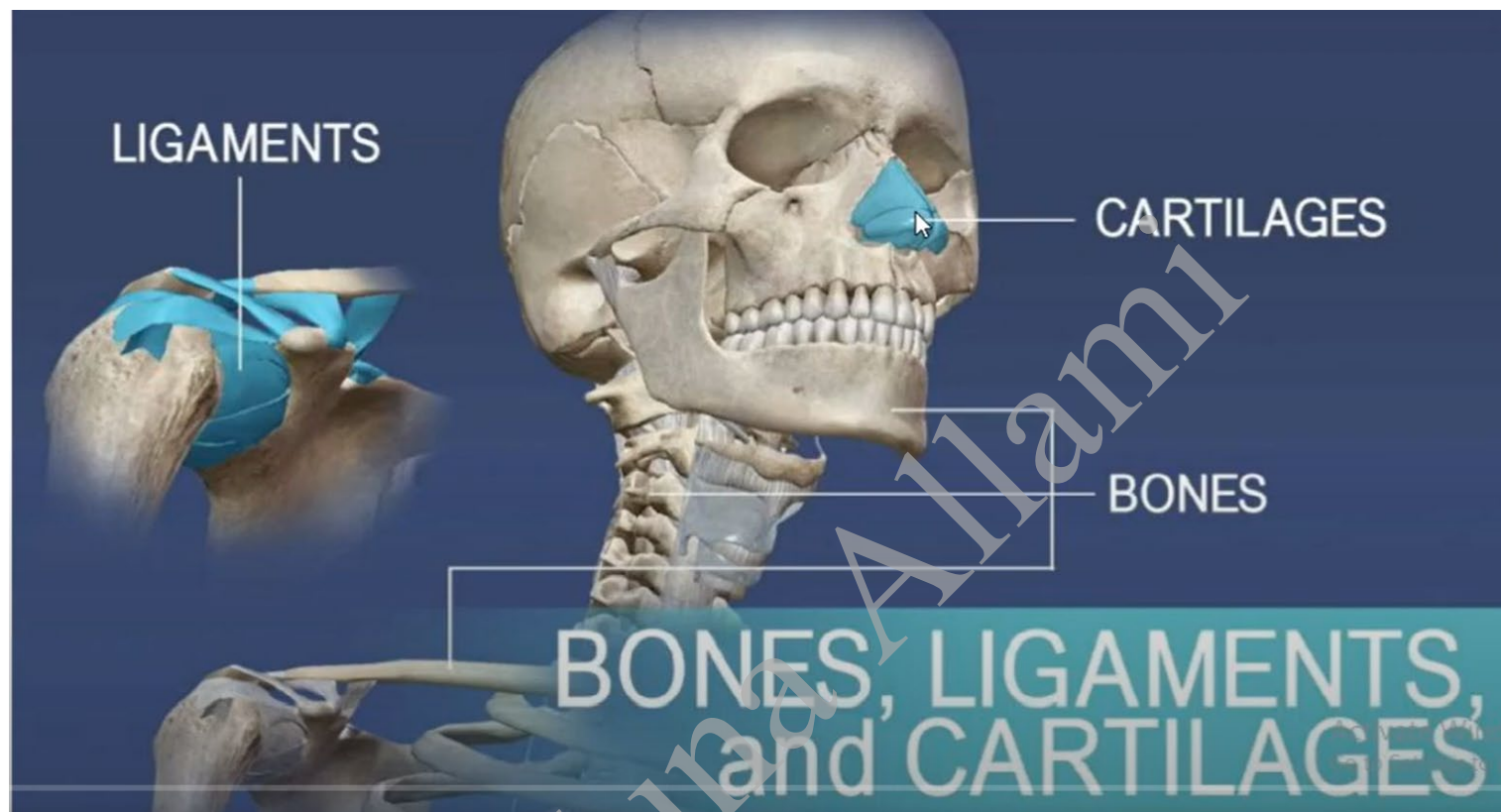
Osteoarthritis = inflammation of the bone and joint.

Sternocostal

Stern = Breast bone O cost = rib al = belongs to

Root + Combining vowel + Root + suffix

Sternocostal = relating to the sternum and ribs.



Skeletal system 2

Lecture 4

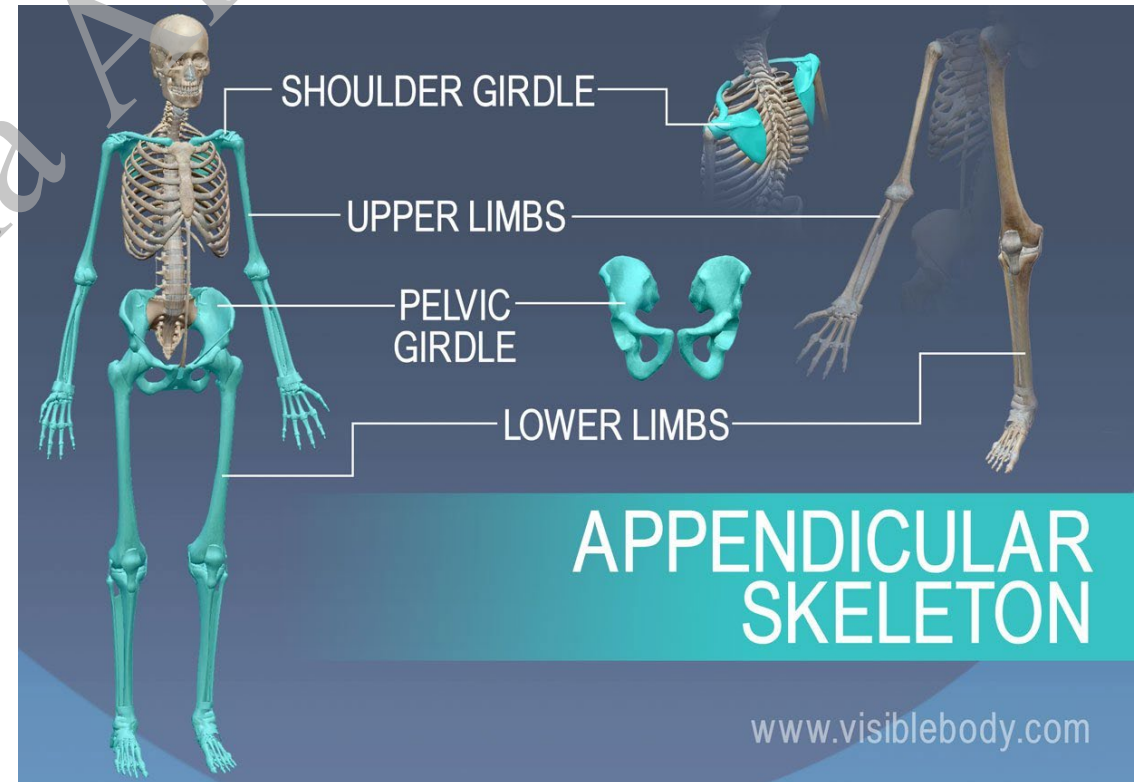
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Appendicular skeleton

- Consists of :
 - 1-Shoulder girdle & The Upper limbs.
 - The pelvic girdle & The lower limbs.



Appendicular skeleton

1-Shoulder girdle, this includes:

- Clavicle (2)
- Scapula (2)

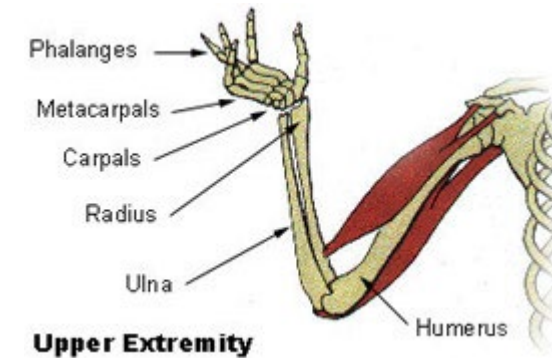
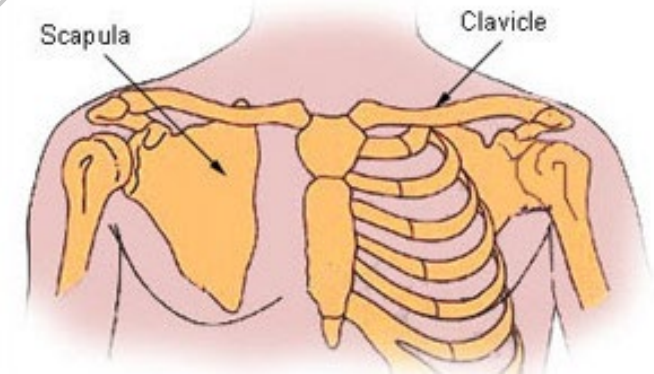
2-Upper limbs

-Arm bones

- Humerus (2)
- Radius (2)
- Ulna (2)

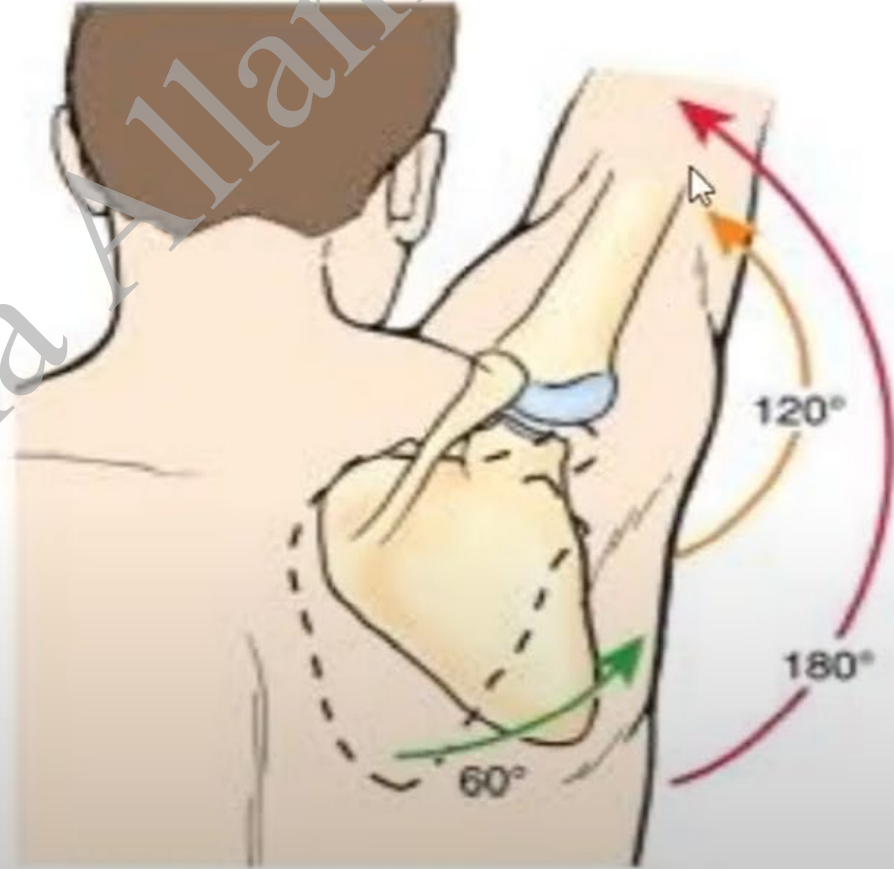
- Hand bones

- Carpals (16)
- Metacarpals (10)
- Phalanges (28)



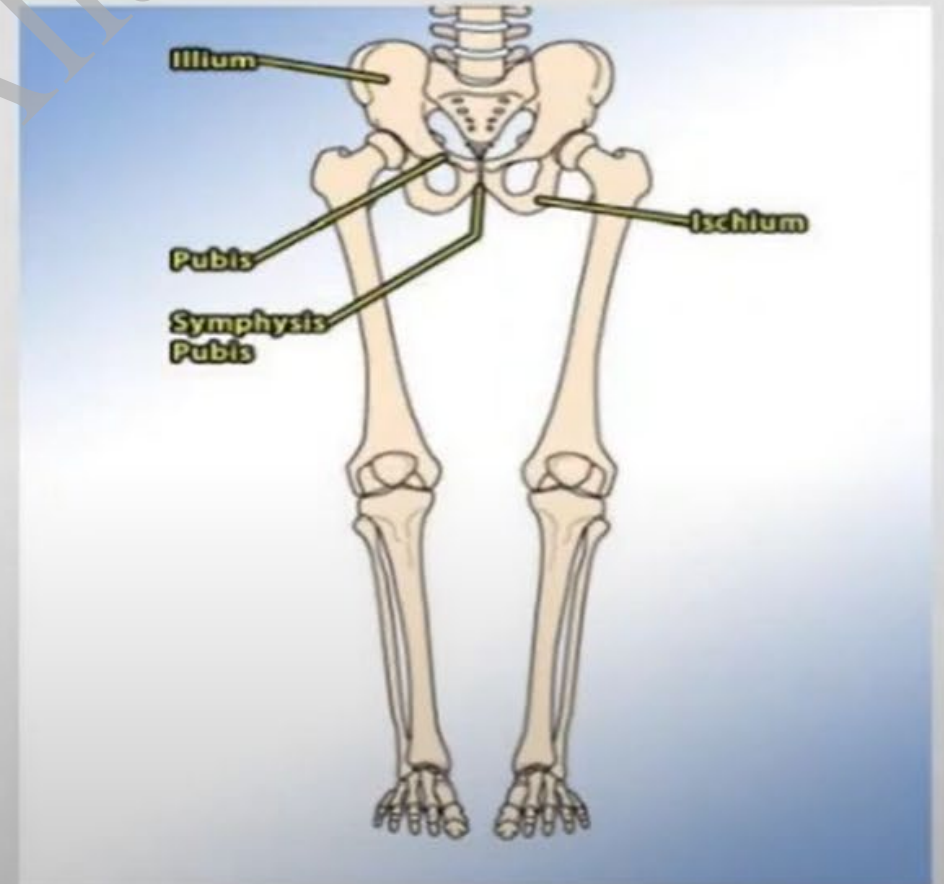
Function of clavicle and scapula

- Power and stability of arm
- Motion of the shoulder girdle
- Muscle attachment
- Protects neurovascular structures

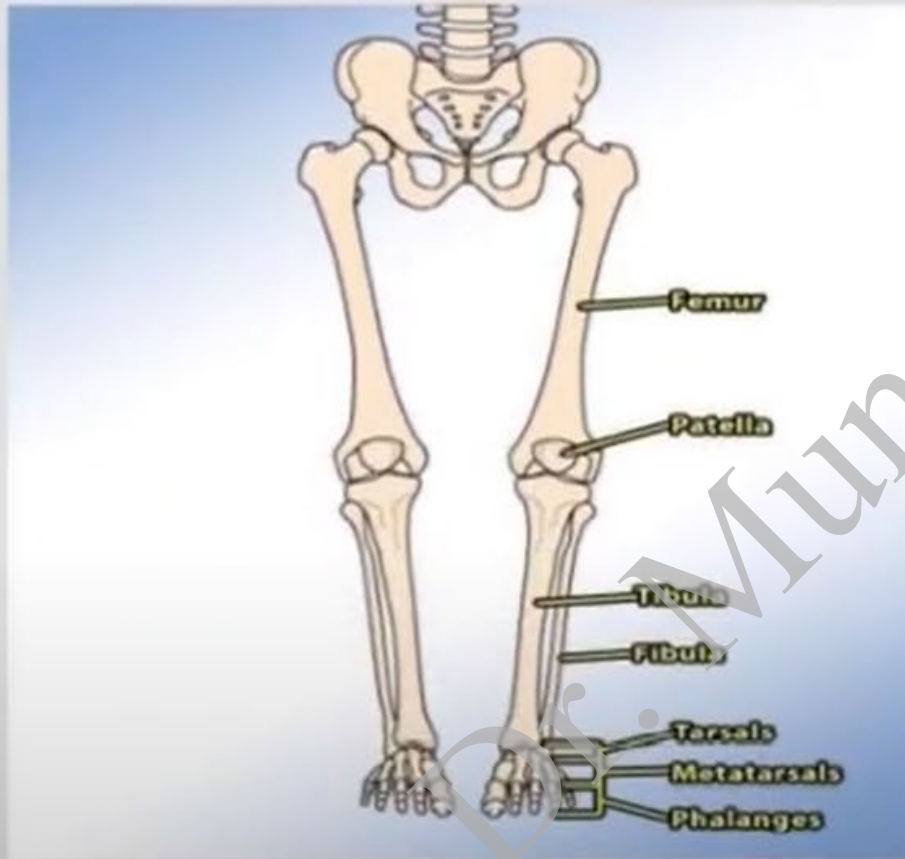


APPENDICULAR SKELETON: PELVIC GIRDLE

- Pelvic girdle is made of 2 hip bones, which connect at the **symphysis pubis**.
- Each hip bone is composed of 3 sections:
 - **Ilium**
 - **Ischium**
 - **Pubis**



APPENDICULAR SKELETON: LEGS AND FEET

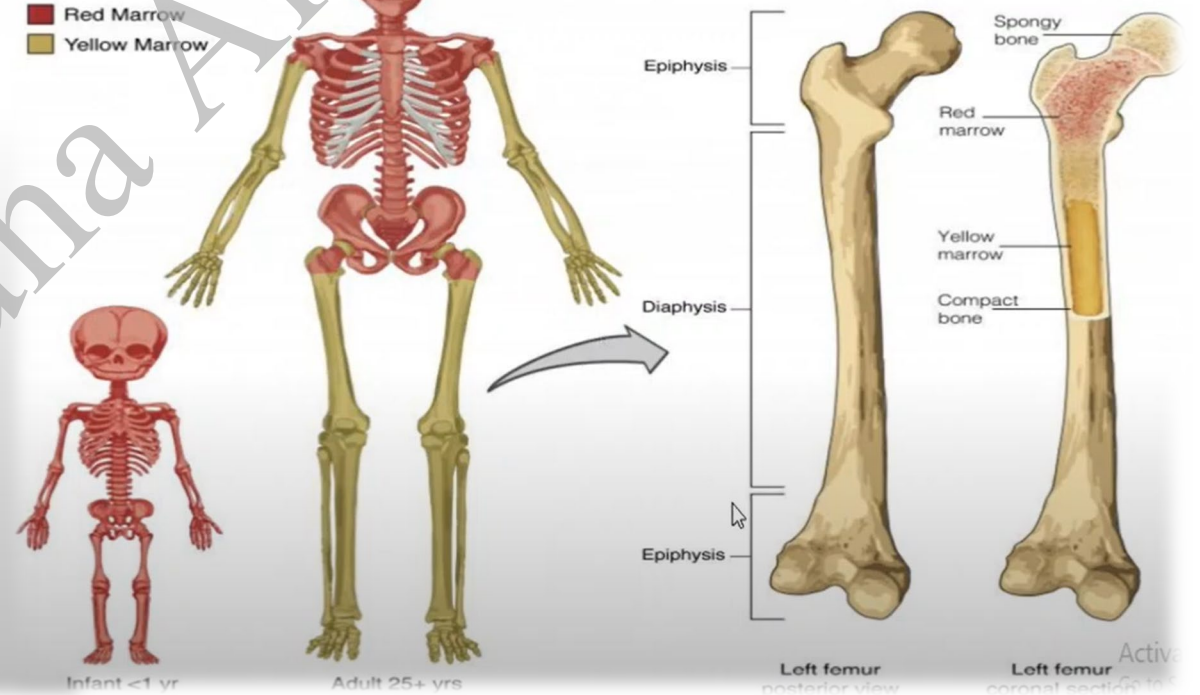


- Leg bones:
 - Femur
 - Patella
 - Tibia
 - Fibula
- Foot bones:
 - 7 tarsals
 - 5 metatarsals
 - 14 phalanges

Bone marrow functions

Bone Marrow: Bones contain variable amounts of yellow and/or red bone marrow.

Yellow bone marrow stores fat and red bone marrow is responsible for producing blood cells (hematopoiesis).



Joints, Ligaments, tendons and Cartilages

How is skeletal system held together?

Joints are the meeting points between bones.

They can be **fixed**, which don't allow movement.

like joints of skull or they are **mobile joints**

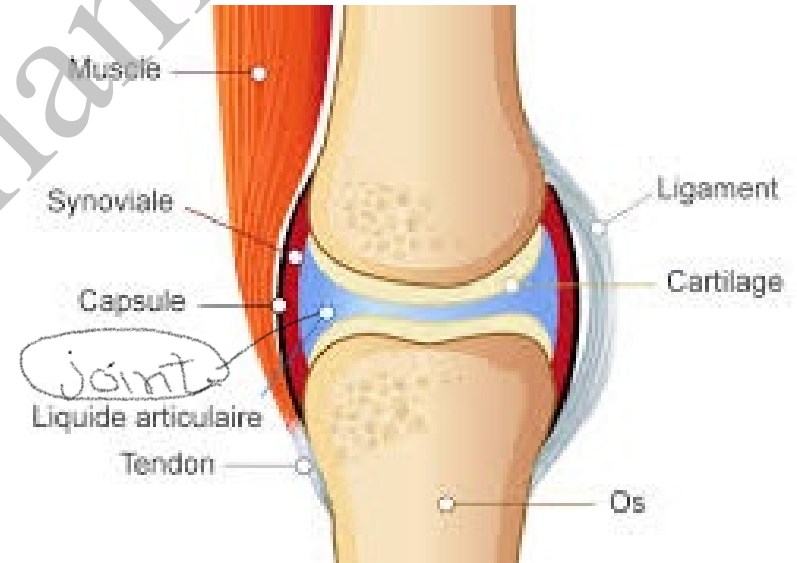
like joint of knee.

Bones are attached to each other by **Ligaments**.

Muscles are attached to bones via **Tendons**.

Cartilages are commonly found between the bones in mobile joints. They act as :

- a cushions between the bones.
- absorbing shocks.
- allowing lubrication.



Associated Diseases

- Arthritis.
- Osteoarthritis
- Osteoporosis
- Rheumatoid arthritis
- Paralysis

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COMBINING FORM	MEANING	EXAMPLE OF USE IN MEDICAL TERMS
arthr/o	joint	arthritis
cervic/o	neck	cervical
chondr/o	cartilage	chondrocytes
coccyg/o	coccyx, tailbone	coccygeal
cost/o	rib	costectomy
crani/o	skull	craniotomy
ligament/o	ligament	ligamentitis
lumb/o	loin, waist	lumbar
muscul/o	muscle	muscular
my/o	muscle	myectomy
myos/o	muscle	myositis
myel/o	bone marrow	myeloma
odont/o	tooth	orthodontist
oste/o	bone	osteomyelitis
pelv/o	pelvis, hip bone	pelvic
sacr/o	sacrum	sacroiliitis
spin/o	spine, backbone	spinal stenosis
spondyl/o	vertebra	spondylosis
ten/o	tendon	tenotomy
tendin/o	tendon	tendinopathy
vertebr/o	vertebra	vertebral

Home work

- 1/what are the joints? What is the difference between joint and ligament?
- 2/how can we benefit from studying skeletal system?

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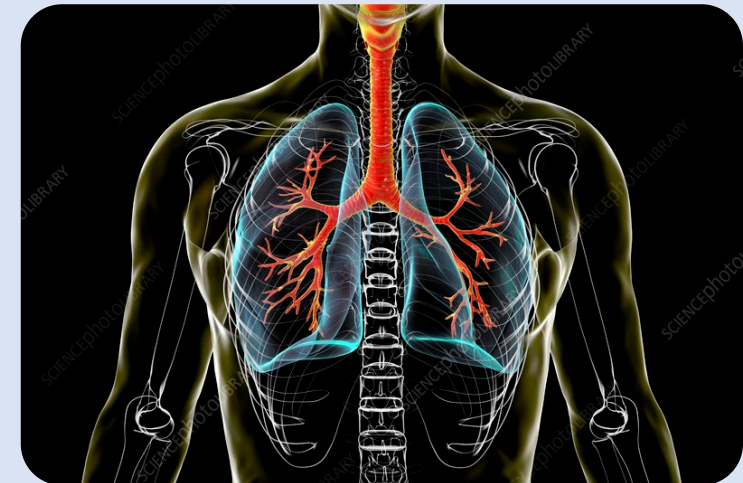
Respiratory system

Lecture 5

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Aims of the lecture:

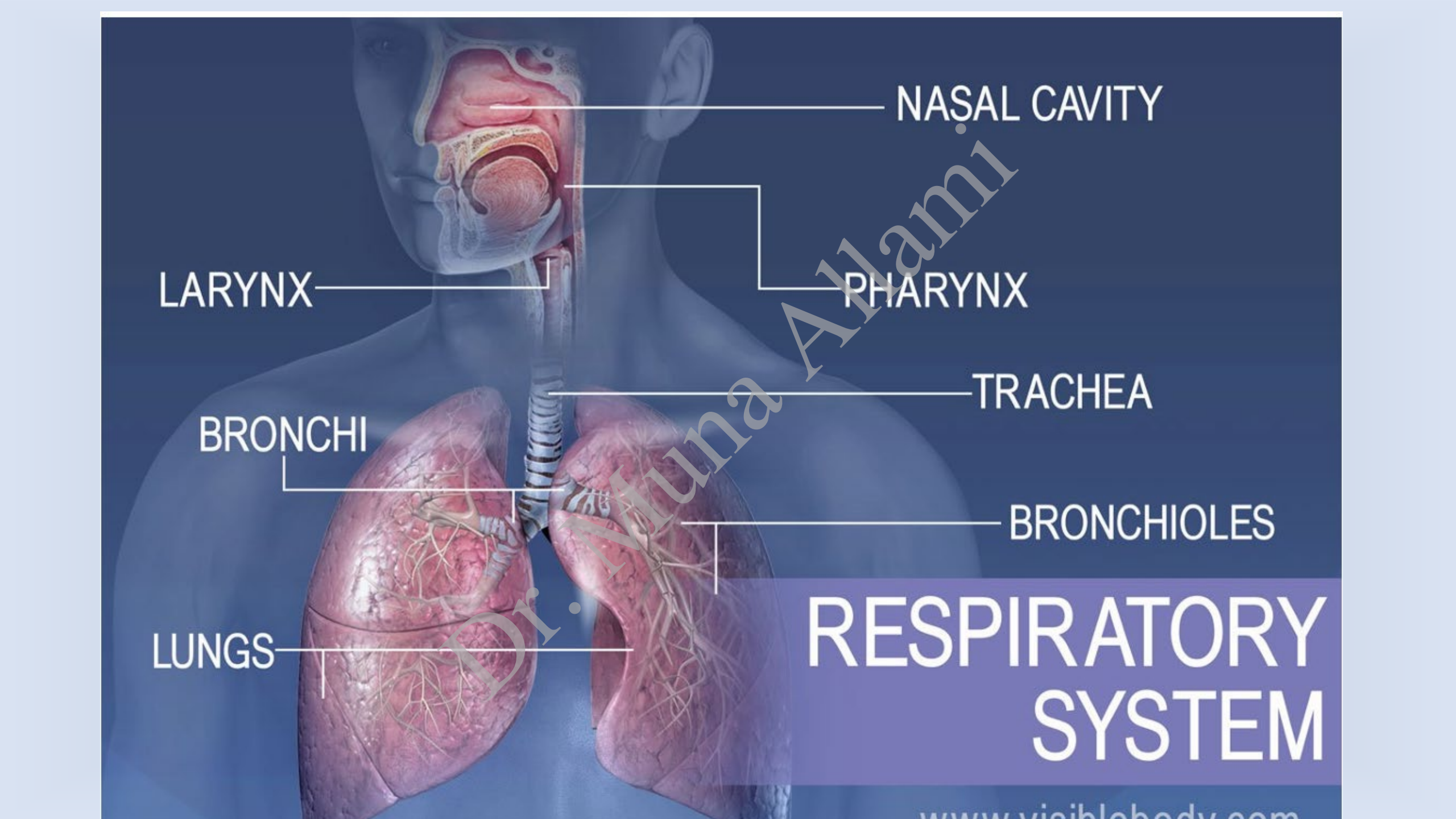
- Identifying different parts and functions of the respiratory system.
- To understand medical terms used in Respiratory system and use them.

Introduction

- The major structures of the respiratory system function primarily to:
- provide oxygen to body tissues for cellular respiration
- remove the waste product carbon dioxide,
- help to maintain acid-base balance.

Portions of the respiratory system are also used for non-vital functions, such as sensing odor, speech production, and for straining, such as coughing.

- **Respiratory system** is an integrated arrangement of organs and structures which functions to extract oxygen from the atmosphere into the bloodstream and expel carbon dioxide, waste product of metabolism from the stream into the atmosphere.
- It consists of:
 - the respiratory tract
 - muscles use for breathing and the part of the brain that controls breathing.



NASAL CAVITY

PHARYNX

LARYNX

TRACHEA

BRONCHI

BRONCHIOLES

LUNGS

RESPIRATORY SYSTEM

Functions of the Respiratory System

- 1. Inhalation and Exhalation.
- 2. External Respiration Exchanges Gases Between the Lungs and the Bloodstream.
- 3. Internal Respiration Exchanges Gases Between the Bloodstream and Body Tissues.
- 4. Air Vibrating the Vocal Cords Creates Sound
- 5. Smelling.

Common Prefixes Related to the Respiratory System

- **a-**: Absence of, without
- **an-**: Absence of, without
- **brady-**: Slow
- **dys-**: Difficult, painful, abnormal, labored
- **endo-**: Within, in
- **eu-**: Normal, good
- **hyper-**: Above, excessive
- **hypo-**: Below, incomplete
- **intra-**: Within, in
- **poly-**: Many, much
- **tachy-**: Fast, rapid

Common Suffixes Related to the Respiratory System

- **-cele**: Hernia, protrusion
- **-centesis**: Surgical puncture to aspirate fluid
- **-ectasis**: Stretching out, dilation, expansion
- **-genic**: Producing, originating, causing
- **-ia**: Condition, diseased state, abnormal state
- **-pnea**: Breathing
- **-ptysis**: Spitting, coughing
- **-spasm**: Sudden involuntary muscle contraction, spasmodic contraction
- **-stenosis**: Constriction, narrowing
- **-stomy**: Creation of an artificial opening



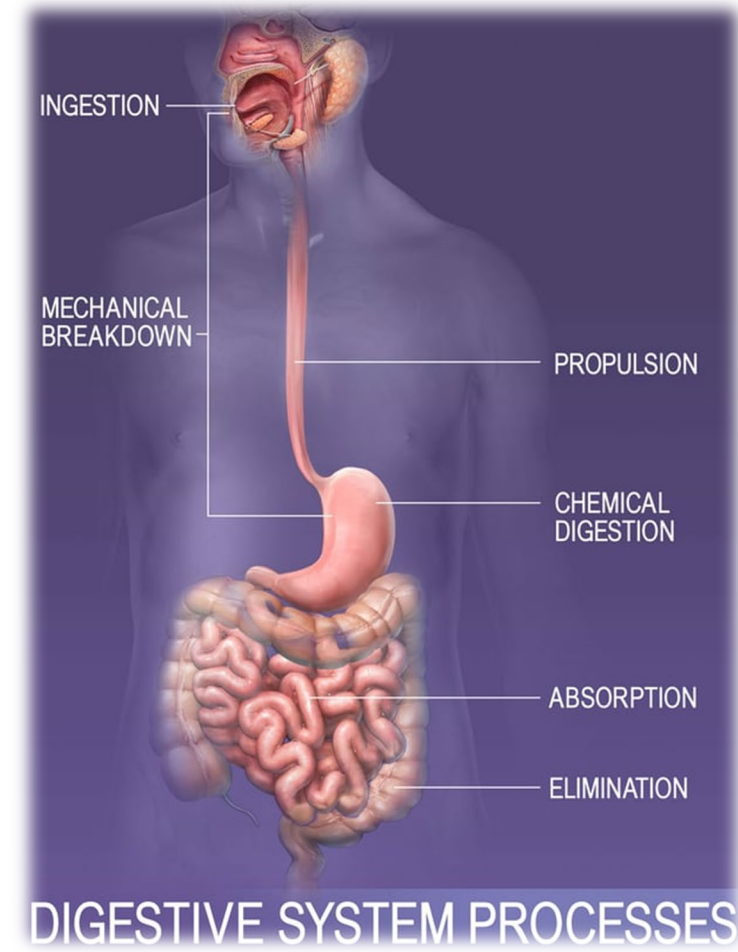
Digestive system

Lecture 6

By

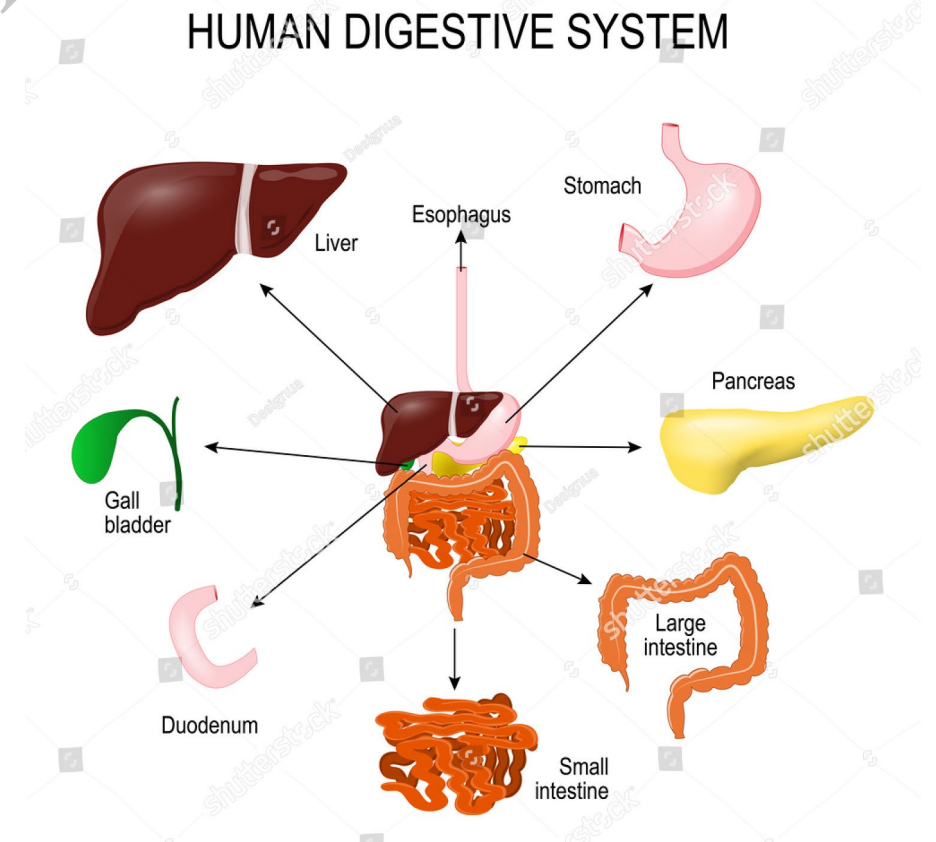
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Aims

- Identifying different parts and functions of the gastro- intestinal system.
- Learning various medical terminology.

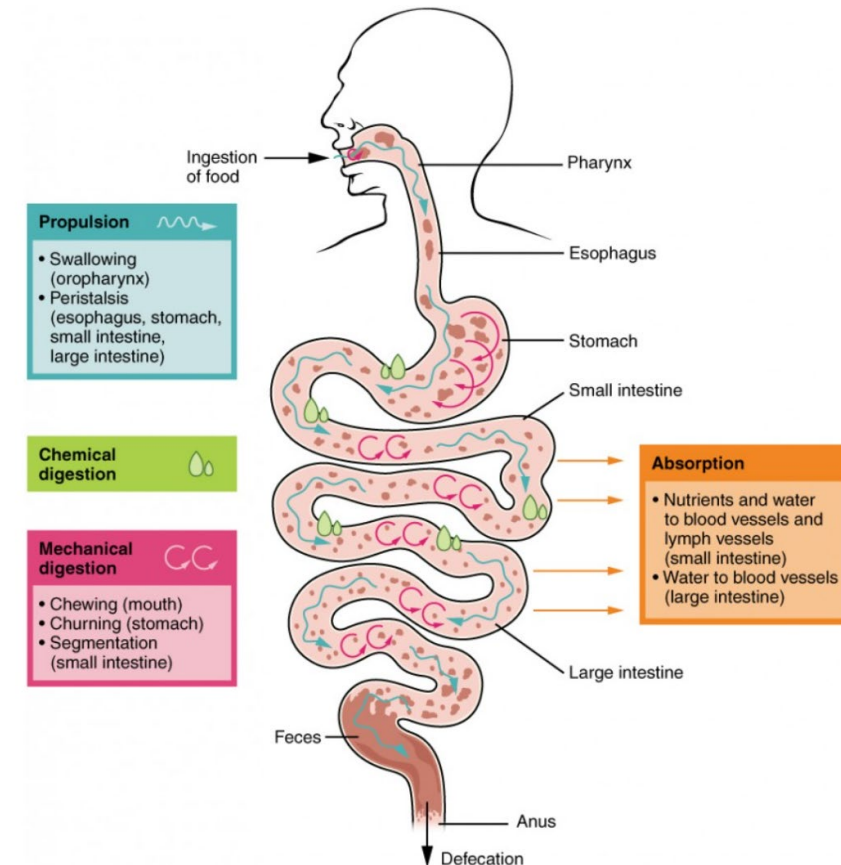


Definition

- Gastrointestinal tract, also called digestive tract, pathway by which food enters the body and solid wastes are expelled.

The digestive processes are:

- ingestion
- propulsion
- mechanical digestion
- chemical digestion
- absorption
- defecation

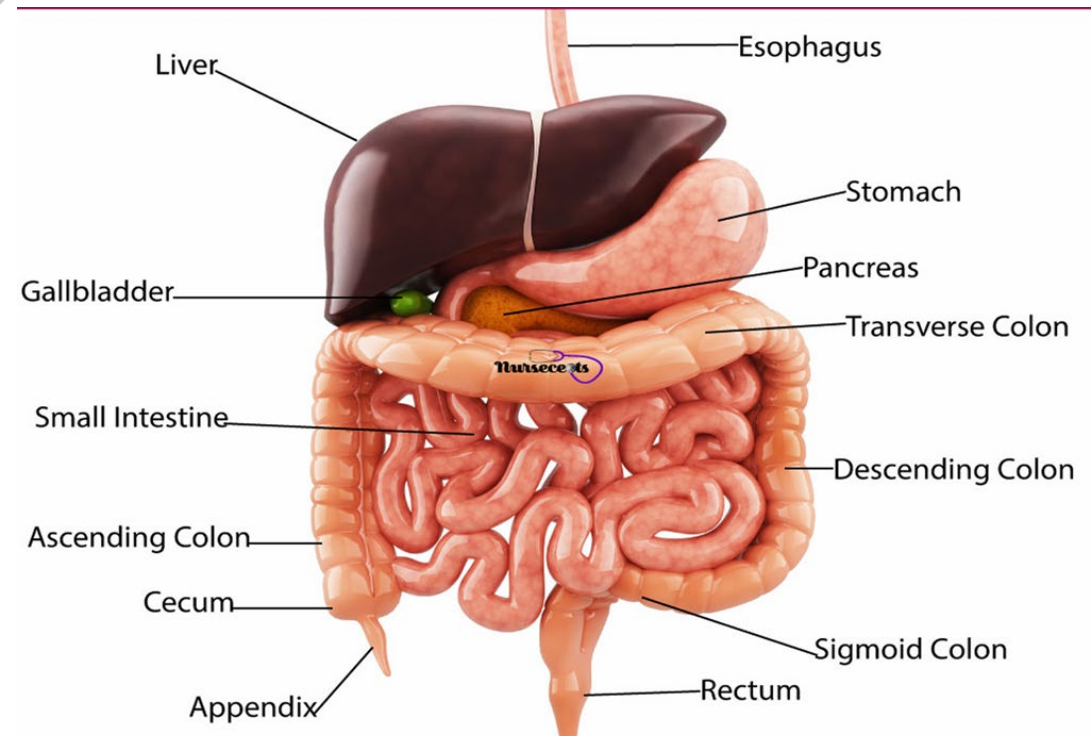


The upper part of the digestive system includes:

- The upper part of the digestive system includes:
- the oral cavity, teeth, tongue, salivary glands, pharynx and esophagus, stomach and duodenum.

The lower part of the digestive system includes:

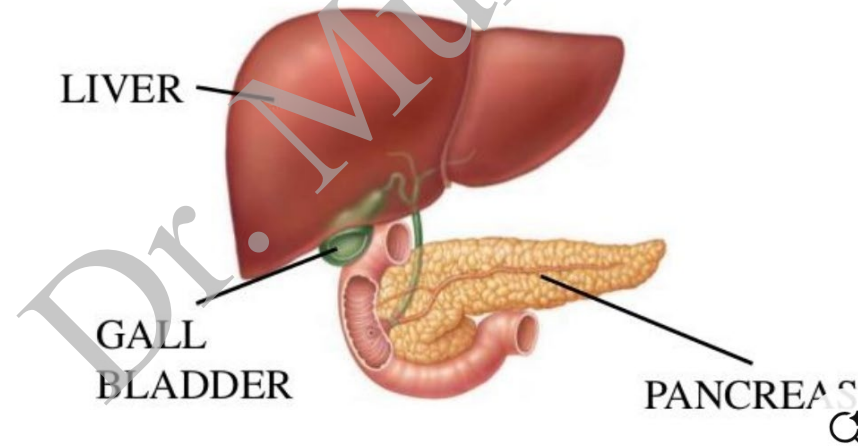
- The lower gastrointestinal tract includes most of the small intestine and all of the large intestine. In human anatomy, the intestine (bowel, or gut)



Accessory organs of digestive system

The accessory organs include the liver, gallbladder, and pancreas

DIGESTIVE SYSTEM : ACCESSORY STRUCTURES



A list of word roots with their combining vowel used for the gastrointestinal system

Esophag(o)	esophagus
Gastro(o)	stomach
Hepat(o)	liver
Ile(o)	ileum
Jejun(o)	jejunum
Pancreat(o)	pancreas
Proct(o)	rectum and anus
Rect(o)	rectum
Sigmoid(o)	sigmoid colon
Spleen(o)	spleen
Hemat(o)	blood

Gastrointestinal suffixes and prefixes

TERM	DEFINITION
Bili-	bile
Cec-, ceco-	cecum
Cirrh-	yellow
Cys-	bladder or sac
Dys-	bad or painful
Gastro-, gastr-	stomach
Sigmoid-	sigmoid colon
-pancreat	pancreas
-phagia	to eat or swallow
-emesis	vomit

Terminology of gastrointestinal system

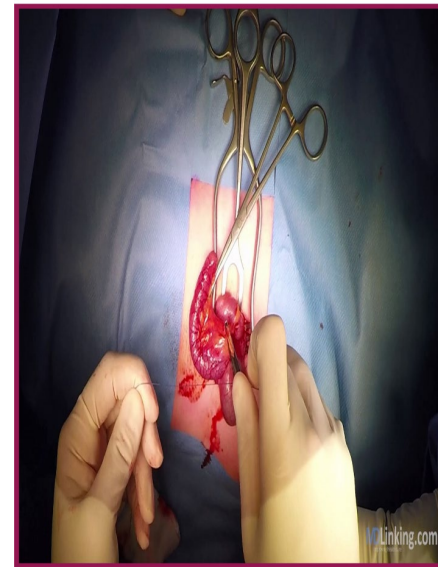
Colonoscopy: The examination of the lining of the colon with a colonoscope.

Endoscopy: The examination of the organs and cavities of the body with an endoscope.

Abdominal ultrasound: high-frequency sound waves for the abdomen.

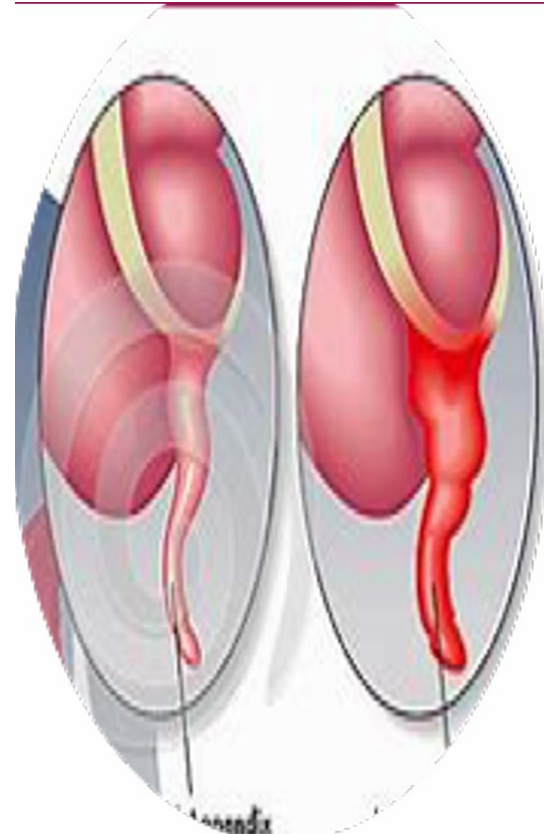
Appendicectomy: Surgical removal of the vermiform appendix.

Cecostomy: The surgical formation of an opening into cecum.



Terminology of gastrointestinal system

- Appendicitis: Inflammation of the vermiform appendix.
- Ascites: The accumulation of a large amount of fluid in the peritoneal space
- Dysphagia: Difficulty in swallowing.
- Gastritis: Inflammation of the lining stomach.
- Hematemesis: The vomiting of bright red blood.
- Hepatomegaly: The abnormal enlargement of the liver.



Common suffixes

-sis	state of, condition
-stasis	to stand, place, stop, control
-stenosis	narrowing
-tension	pressure
-therapy	treatment
-thoracic	chest
-ule	small



Cardiovascular system

Lecture 7

By

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GOALS OF STUDYING

- Identifying different parts and functions of the cardiovascular system
- Introducing various medical terminology.

Definition and function

The cardiovascular system: is the system responsible for delivering blood to different parts of the body.

Its primary function is to transport nutrients and oxygen-rich blood to all parts of the body and to carry deoxygenated blood back to the lungs.

Structure of the cardiovascular System

The cardiovascular system consists of the **heart**, and **blood vessels**.

Heart is the muscular organ that pumps blood throughout the body.

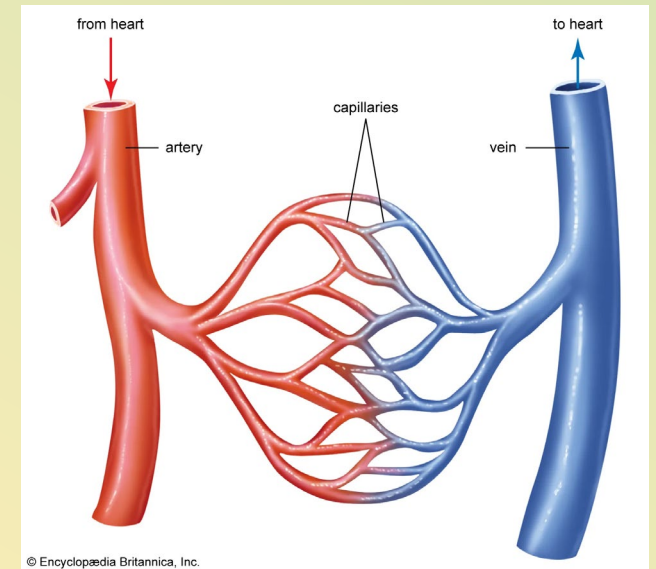
Heart consists of four chambers: **2 atriums and 2 ventricles**.

The left and right atriums receive blood, and the left and right ventricles pump out blood.

The heart has four **valves** that keep the blood flowing in the correct direction.

Blood vessels

- **Veins:** blood vessels that return blood to the heart.
- **Arteries:** blood vessels that carry blood away from the heart.
- **Capillaries** They are located between the arteries and veins to allow minerals, gases, and waste to transport between cells



Diseases and Conditions of the Cardiovascular System

Angina pectoris

- **Angi-** refers to a vessel.
- **pector-** refers to breast.

Angina pectoris is thoracic pain caused by spasms in the coronary arteries caused by not enough oxygen to the myocardium of the heart.



Diseases and Conditions of the Cardiovascular System

Cardiac arrest

- **Cardiac** refers to the heart.
- **Arrest.** means to inhibit, restrain or stop.

A **cardiac arrest** is a sudden stoppage of cardiac circulation and cardiac output.

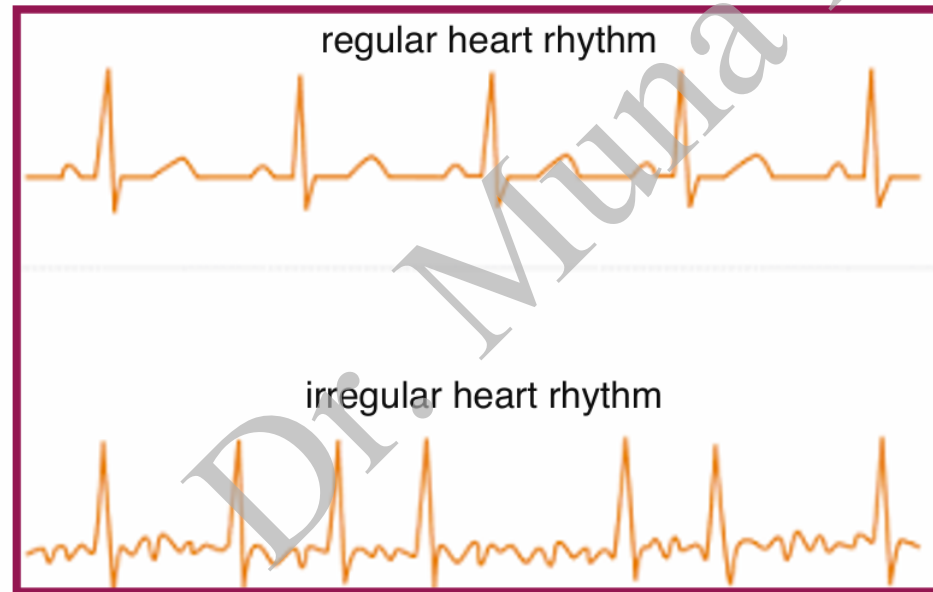


Diseases and Conditions of the Cardiovascular System

Arrhythmia

- **A-** refers to without.
- **Rhythmia** refers to the rhythm.

Arrhythmia means an irregular heart rhythm



Procedures of the Cardiovascular System

- **catheterization** is the introduction of a catheter into a body cavity
- A **cardiac catheterization** is the introduction of the catheter through an incision into a large vein and guided through circulation into the heart.

- **Echocardiogram**

- **Echo** sound reflection
- **Cardi(o)** means heart
- **gram** means a drawing or a written record

An **echocardiogram** is a graphic reading of the heart movement from an ultrasonography.

Procedures of the Cardiovascular System

- **Cardiopulmonary resuscitation (CPR)**
 - **Pulmonary** refers to the lungs or the respiratory system
 - **Resuscitate** means to revive. Resuscitation is a process to sustain the cardiac and respiratory functions.
- **Cardiopulmonary resuscitation** is an emergency procedure that involves external cardiac massage and artificial respirations to revive and sustain the cardiac and respirator



Procedures of the Cardiovascular System

Thoracotomy

- **Thorac(o)** refers to chest.
- **-tomy** refers to puncture.

A **thoracotomy** is a surgical opening into the thoracic cavity.

