



Medical Terminology

Pharmacology & Toxicology

Lecture 1: Introduction



Assist. Lecturer:

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Introduction

- The language of medicine is a specialized vocabulary used by health-care providers. Many current medical word elements originated as early as the 4th century B.C. when Hippocrates practiced medicine.
- With technological and scientific advancement in medicine, new terms have evolved to reflect these innovations.
- Radiographic terms such as **magnetic resonance imaging (MRI)** and **Ultrasound (US)** are commonly used to describe current diagnostic procedure

Medical Word Elements

A medical word consist of some or all of the following elements:

1- Prefix = Beginning

Description: number/amount, size, location, color, time, direction etc.

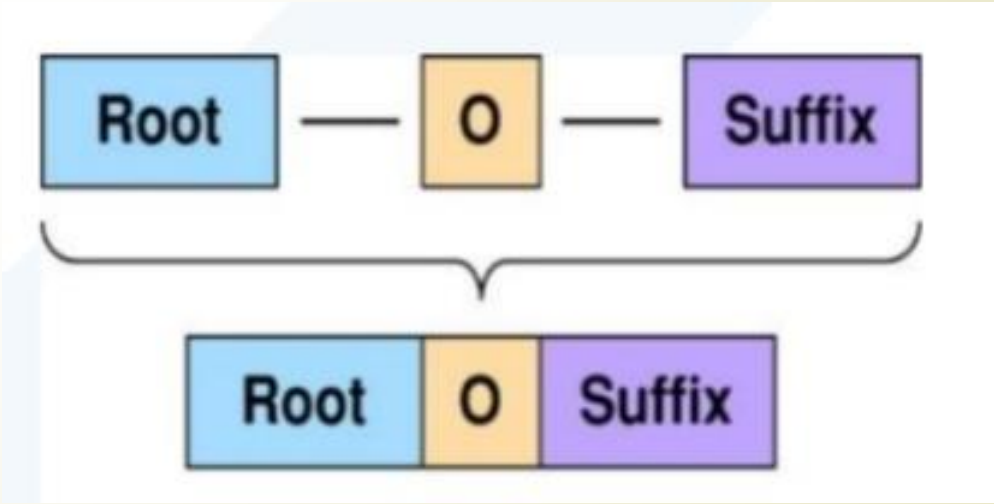
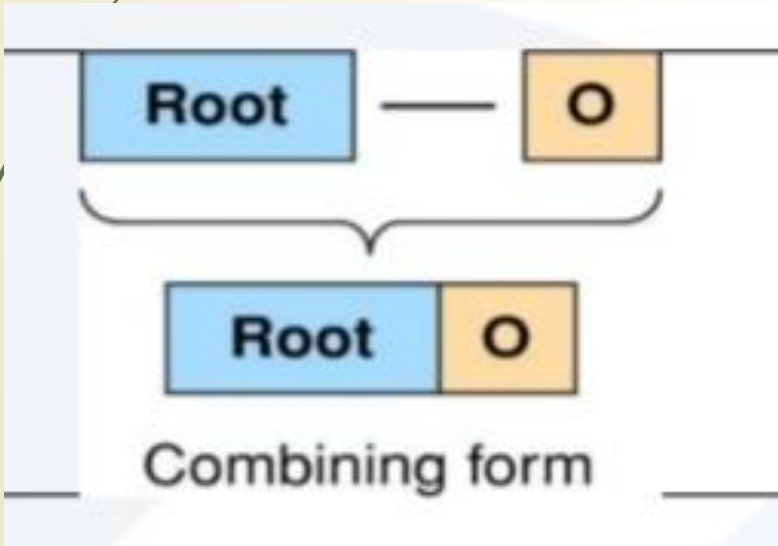
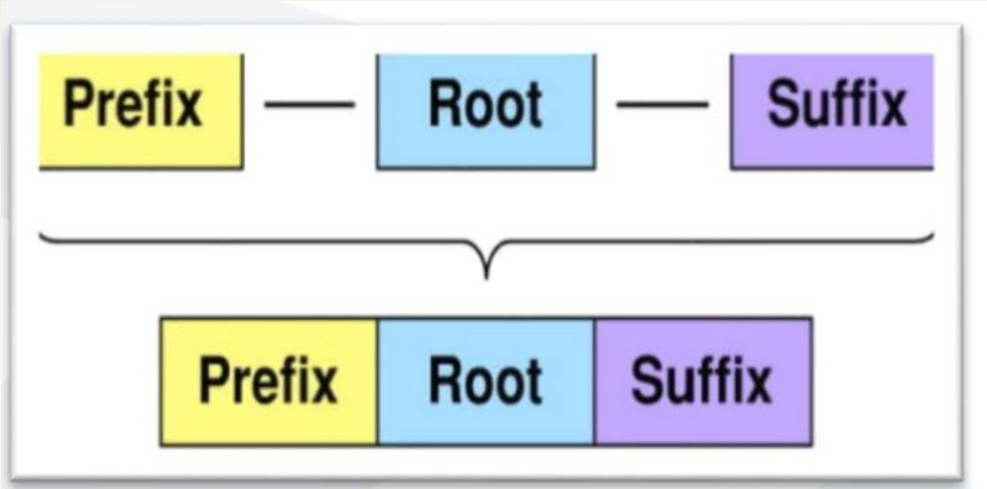
2- Word Root = Middle

Subject: Relating to a part of the body

“ **Combining form = Root + O** ”

3- Suffix = Ending

Condition : refer to a process or procedure , amount , location etc.



prefix

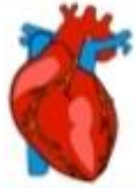






PREFIX	MEANING	
hyper-	excessive, more than normal	مُفْرِط
hypo-	below, less than normal	تحت، دون
endo-	within, inside	داخلي
exo-	outside	خارجي
sup-	below, under	تحت
anti-	against	ضيد، مُعَارِض
dys-	bad, painful, difficult, abnormal	خلل، سوء، عسر، شاذ









dia-	complete	كامل
pro-	before, forward	قبل، سابق
brady-	slow	البُطء
epi-	above, upon	فوق
sub-	below, under	تحت
Hidr/o-	sweat	عرق
post-	after	بعد


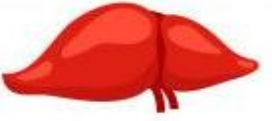






Word Roots



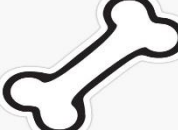




- A word root is the foundation of a medical term and contain its primary meaning.
- All medical terms have at least one word root.
- Most word roots are derived from Greek or Latin language; thus two different roots may have the same meaning.
- The Greek word **dermatos** & the Latin word **cutane**, both refer to the skin.
- ❖ Greek roots describe a disease, condition, treatment or diagnosis.
Latin roots describe anatomical structure:
- Greek root: **dermatos** (skin) / describe a **disease, condition, treatment or diagnosis**
- Latin root: **cutane** (skin)/ describe **an anatomical structure**

Root

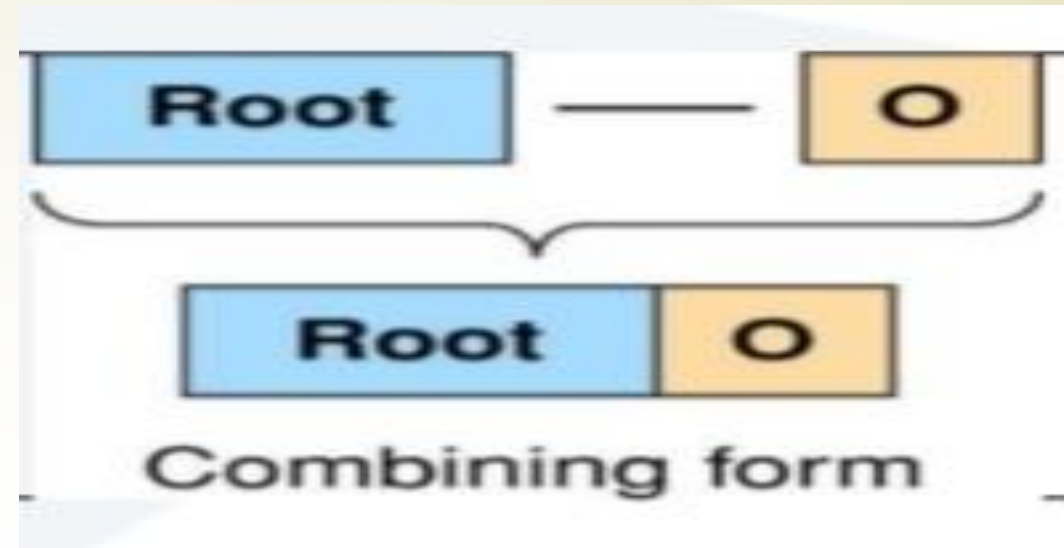
ROOT		COMBINING FORM	MEANING	
cardi		cardi/o	heart	قلب
arthr		arthr/o	joint	مفصل
aden		aden/o	gland	غدة
leuk		leuk/o	white	أبيض
enter		enter/o	intestine	أمعاء
bi		bi/o	life	حياة
cephal		cephal/o	head	رأس

cerebr		cerebr/o	cerebrum	الدماغ (المخ والمخيخ والبصلة)
ophthalm		ophthalm/o	eye	عين
hem hemat		hem/o hemat/o	blood	دم
psych		psych/o	mind	النفس
faci		faci/o	face	وجه
oste		oste/o	bone	عظم
erythr		erthr/o	red	أحمر
cervic		cervic/o	neck	رقبة

The word	Meaning	
Entero	Intestine	
Hepato	liver	
pancreato	Pancrease	
Gastro	Stomach	
Nephro	Kidney	
Dermato	Skin	
Cardio	Heart	
Neuro	Nerve	

The word	Meaning		
Rhino	Nose		
Pulmono	Lung		
Osteo	Bone		
Arthro	Joint		
Oto	Ear		
Ophthalmo / oculo	Eye		
Oro	Mouth		

Combining Form



Word Root	+	Vowel	=	Combining Form	Meaning
erythr/	+	o	=	erythr/o	red
gastr/	+	o	=	gastr/o	stomach
hepat/	+	o	=	hepat/o	liver
immun/	+	o	=	immun/o	immune, immunity, safe
nephr/	+	o	=	nephr/o	kidney
oste/	+	o	=	oste/o	bone

Suffixes








- **suffix** is a word element placed at the end of a word that alters its meaning. All medical terms have a suffix.

pancreat/itis = inflammation of the pancreas // **-itis** = inflammation

pancreat/o/pathy = disease of the pancreas // **-pathy** = disease

- **suffix** usually describes a pathology (disease or abnormality), symptom, surgical or diagnostic procedure, or part of speech.

Suffix

SUFFIX		MEANING		EXAMPLE		EXTINCTION
-algia		pain	الم	arthralgia	الم المفصل	arthr means joint
-gram		record	مخطط	cardiogram	مخطط القلب	cardi means heart
-ostomy		surgical opening	فغر	nephrostomy	فغر الكلية	nephr means kidney
-ectomy		cutting out	استئصال	gastrectomy	استئصال المعدة	gastr means stomach
-tomy		cutting into	بضع / قطع	neurotomy	بضع / قطع العصب	neur means nerve
-scope		instrument to visually examine	منظار	laparoscope	منظار البطن	lapar means abdomen
-scopy		process to visually examination	تَنْظِير	laparoscopy	تَنْظِير البطن	lapar means abdomen

Defining Medical Word

- ▶ Here are three steps for defining medical words using gastr/o/enter/itis as an example.
- ▶ Step 1. Define the **suffix**, or **last part of the word**.
e.g. the suffix **-itis** means **inflammation**.
- ▶ Step 2. Define the **first part of the word**
e.g. the combining form **gastr/o** means **stomach**.
- ▶ Step 3. Define the **middle parts of the word**.
e.g. the word root **enter** means **intestine**.

Defining Medical Word

➤ When you analyze gastr/o/enter/itis following the three steps, the meaning is:

1. inflammation (of)
2. stomach (and)
3. intestine.

Thus, **gastr/o/enter/itis = inflammation of stomach and intestine.**

Building Medical Words

- There are three basic rules for building medical words.

Rule 1

- A word root links a suffix that begins with a vowel.

Word Root	+	Suffix	=	Medical Word	Meaning
hepat (liver)	+	-itis (inflammation)	=	hepatitis hĕp-ă-Tĭ-tĭs	inflammation of the liver

Building Medical Words

Rule 2

- ▶ A combining form (root + o) links a suffix that begins with a consonant.

Combining Form	+	Suffix	=	Medical Word	Meaning
hepat/o (liver)	+	-cyte (cell)	=	hepatocyte HEP-ă-tō-sīt	liver cell

Building Medical Words

Rule 3

- A combining form links one root to another root to form a compound word.
- This rule holds true even if the second root begins with a vowel, as in *oste/o/arthr/itis*.

Combining Form	+	Word Root	+	Suffix	=	Medical Word	Meaning
oste/o (bone)	+	chondr (cartilage)	+	-itis (inflammation)	=	osteocondritis ōs-tē-ō-kōn-DRĪ-tīs	inflammation of bone and cartilage
	+	arthr (joint)	+	-itis (inflammation)	=	osteoarthritis ōs-tē-ō-ār-THRĪ-tīs	inflammation of bone and joint

Thank you for your attention



Medical terminology

Lec 2

**Common word roots, prefixes and
suffixes**

Common word roots

Root	meaning
Arterio	Artery
Skeleto	skeleton
Spino	Spinal cord
Tendino	Tendon
Musclo / myo	muscle
Patho	disease
Hystero	uterus
Thoraco	Chest/Thorax
Lapro	Abdomen

Categories of Prefixes

- ▶ Not all medical terms include a prefix, but when one is present, it is critical to the term's meaning.

- ▶ Dividing prefixes into functional categories makes them easier to learn.
 - 1- Prefixes of **time** or **speed**
 - 2- Prefixes of **direction**
 - 3- Prefixes of **position**
 - 4- Prefixes of **size** or **number**
 - 5- Prefixes of **negation**

1- Prefixes of Time or Speed

- Prefixes denoting speed, such as **tachy-** (fast) and **brady-** (slow), are often used to describe **heart rate**.

Prefix	Refers to	Example	Meaning
ante-, pre-	before	antepartum, premature	before birth, before full development
brady-	abnormally slow rate of speed	bradycardia	abnormally slow heartbeat
neo-	new	neonatal	newborn (adjective)
post-	after	postscript	a written thought added after the main message
tachy-	rapid, abnormally high rate of speed	tachycardia	abnormally fast heartbeat

2- Prefixes of Direction

- ▶ The word **abnormal** is an example of a word containing a prefix that signifies direction.

Prefix	Refers to	Example	Meaning
ab-	away from, outside of, beyond	abnormal	not normal
ad-	toward, near to	adjective	toward a noun
con-, sym- , syn-	with, within	congenital, sympathetic, synthetic	with (or at) birth, with feeling toward, with the same idea or purpose
contra-	against	contraband	substance against the law
dia-	across, through	diameter	a line through the middle

3- Prefixes of Position

Prefix	Refers to	Example	Meaning
ec-, ecto-, ex-, exo-	outside	extraction	removal to the outside
en-	inside	encephalopathy	disease inside the head, brain disease
endo-	within	endoscopy	visual examination of the inside of some part of the body
epi-	upon, subsequent to	epigastric	adjective referring to something above the stomach
extra-	beyond	extracellular	adjective referring to something outside a cell or cells
hyper-	above, beyond normal	hyperglycemia	high blood sugar
hypo-	low, below, below normal	hypogastric	region beneath the stomach
infra-	inside or below	infrarenal	adjective referring to something below the kidneys
inter-	between	interosseous	between bones
intra-	inside, within	intracerebral	inside the cerebrum

meso-	middle	mesothelioma	tumor arising from the mesothelium
meta-	beyond	metacarpal	the bone beyond the carpus; one of five bones in either hand
pan-	all or everywhere	pancarditis	general inflammation of the heart
para-	alongside, near	paraplegia	paralysis of the lower half of the body
peri-	around	perivascular	in the tissues surrounding a vessel
retro-	backward, behind	retrosternal	adjective referring to something behind the sternum

4- Prefixes of Size and Number

Prefix	Refers to	Example	Meaning
bi-	two	biannual	twice per year
di-, dipl-	two, twice	diplopia	double vision
hemi-	half	hemiplegia	paralysis of one body side
macro-	big	macrocyte	big cell

micro-	small	microscope	instrument to view small objects
mono-	one	monocyte	cell with one nucleus
olig-, oligo-	a few, a little	oliguria	scant urine production
pan-	all or everywhere	pancarditis	whole heart inflammation
poly-	many	polydactyly	more than five hand or foot digits
quadri-	four	quadriplegia	paralysis of all four limbs
semi-	half, partial	semiannual	occurring every half year
tetra-	four	tetradactyl	having only four hand or foot digits
tri-	three	triceps	three-headed muscle
uni-	one	unicellular	one-celled

5- Prefixes of Negation

Negation means absence or opposite of something. These include words like antidepressant (**anti-** means “**against**”).

Prefix	Refers to	Example	Meaning
a-, an-	not	anuria	not able to urinate
anti-	against, opposed	antibiotic	drug that inhibits microbes
de-	without	dehumidifier	device that removes water
dis-	remove	disable	put out of action

Categories of Suffixes

► Dividing suffixes into functional categories makes them easier to learn than they would be otherwise. A suffix adds to or changes a root in one of four different ways.

► Suffixes:

1- Signify a medical condition.

2- Signify a diagnostic term, test information, or surgical procedure.

3- Name a medical practice or practitioner.

4- Convert a noun to an adjective

Suffixes Signifying Medical Conditions

Suffix	Meaning of the Suffix	Example	Meaning of the Example
-algia, -dynia	pain	arthralgia, arthrodynia	pain in a joint
-cele	protrusion, hernia	rectocele	hernia of the rectum
-cyte	cell	leukocyte	white blood cell
-ectasis, -ectasia	expansion or dilation	angiectasis	dilation of a vessel
-edema (also a standalone word)	excessive fluid	angioedema	fluid buildup that causes swelling under the skin
-emesis	vomiting	hematemesis	vomiting of blood
-emia	blood	uremia	urea in the blood
-iasis	condition or state	cholelithiasis, sometimes also spelled "chololithiasis"	stones in the gallbladder or bile ducts
-ism	a condition of, a process, or a state of	hypothyroidism	condition characterized by thyroid hormone deficiency

Suffixes Signifying Medical Conditions

-itis	Inflammation	appendicitis	inflammation of the appendix
-lith	stone, calculus, calcification	pneumolith	a stone in the lung
-lysis	disintegration, breaking down	hemolysis	rupture of red blood cells
-malacia	softening	osteomalacia	softening of the bones
-megaly	enlargement	gastromegaly	enlargement of the stomach
-oid	resembling or like	opioid	substance that resembles opium
-oma	tumor	gastroma	tumor of the stomach
-osis	abnormal condition	osteoporosis	condition of porous bones
-pathy	disease	myopathy	disease of the muscle
-penia	reduction of size or quantity	leukopenia	low number of white blood cells
-phobia	fear	carcinophobia	fear of cancer
-plasia	abnormal formation	neoplasia	abnormal growth of cells
-plegia	paralysis	hemiplegia	paralysis on one side of the body
-pnea	breathing	tachypnea	rapid breathing

Suffixes Signifying Medical Conditions

-poiesis	producing	erythropoiesis	production of red blood cells
-porosis	porous condition	osteoporosis	porous
-ptosis	downward displacement	nephroptosis	downward displacement of a kidney
-rrhage	flowing forth	hemorrhage	significant discharge of blood from blood vessels
-rrhea	discharge	rhinorrhea	discharge from the nose (runny nose)
-rrhexis	rupture	hysterorrhexis	rupture of the uterus
-sclerosis	hardness	atherosclerosis	hardening of the arteries
-spasm	muscular contraction	angiospasm	muscular contraction of a vessel
-stasis	level, unchanging	thermostasis	a constant, consistent internal body temperature
-stenosis	a narrowing	arteriostenosis	narrowed arteries

Suffixes Signifying **Diagnostic Terms, Test Information, or Surgical Procedures**

- Suffixes that form terms related to test information, diagnoses, and procedures are often attached to a root that signifies a body part.
- The term **appendectomy** is an example. The suffix **-ectomy** means “**removal of,**” and **append** is the root for **appendix**. Thus, the term means “removal of the appendix.”

Suffix	Refers to	Example
17 -centesis	surgical puncture	thoracentesis
-desis	surgical binding	arthrodesis
-ectomy	surgical removal	appendectomy
-gen, -genic, - genesis	origin, producing	osteogenic
-gram	a recording, usually by an instrument	electrocardiogram
-graph	instrument for making a recording	electrocardiograph
-graphy	act of graphic or pictorial recording	electrocardiography
-meter	instrument for measuring	audiometer
-metry	act of measuring	audiometry

-opsy	examination	autopsy
-pexy	surgical fixation	hysteropexy
-plasty	surgical repair	rhinoplasty
-rrhaphy	suture	herniorrhaphy
-scope	instrument for viewing	arthroscope
-scopy	act of viewing	arthroscopy
-stomy	artificial or surgical opening	tracheostomy
-tome	instrument for cutting	dermatome
-tomy	incision	colotomy
-tripsy	crushing	lithotripsy

Suffixes That Name a Medical Practice or Practitioner

Suffix	Refers to	Example
-ian	specialist	pediatrician
-iatrics	medical specialty	pediatrics
-iatry	medical specialty	psychiatry
-ics	medical specialty	orthopedics
-ist	specialist in a field of study	orthopedist
-logy	study of	gynecology



Thank
you



Medical terminology

Lec 3

The study of growth, development & the body

Assistant Lecturer:

Safa Hameed

Levels of Organization

- The body is divided into different levels of organization, starting with the smallest level:

cells, tissues, organs, body systems, organism

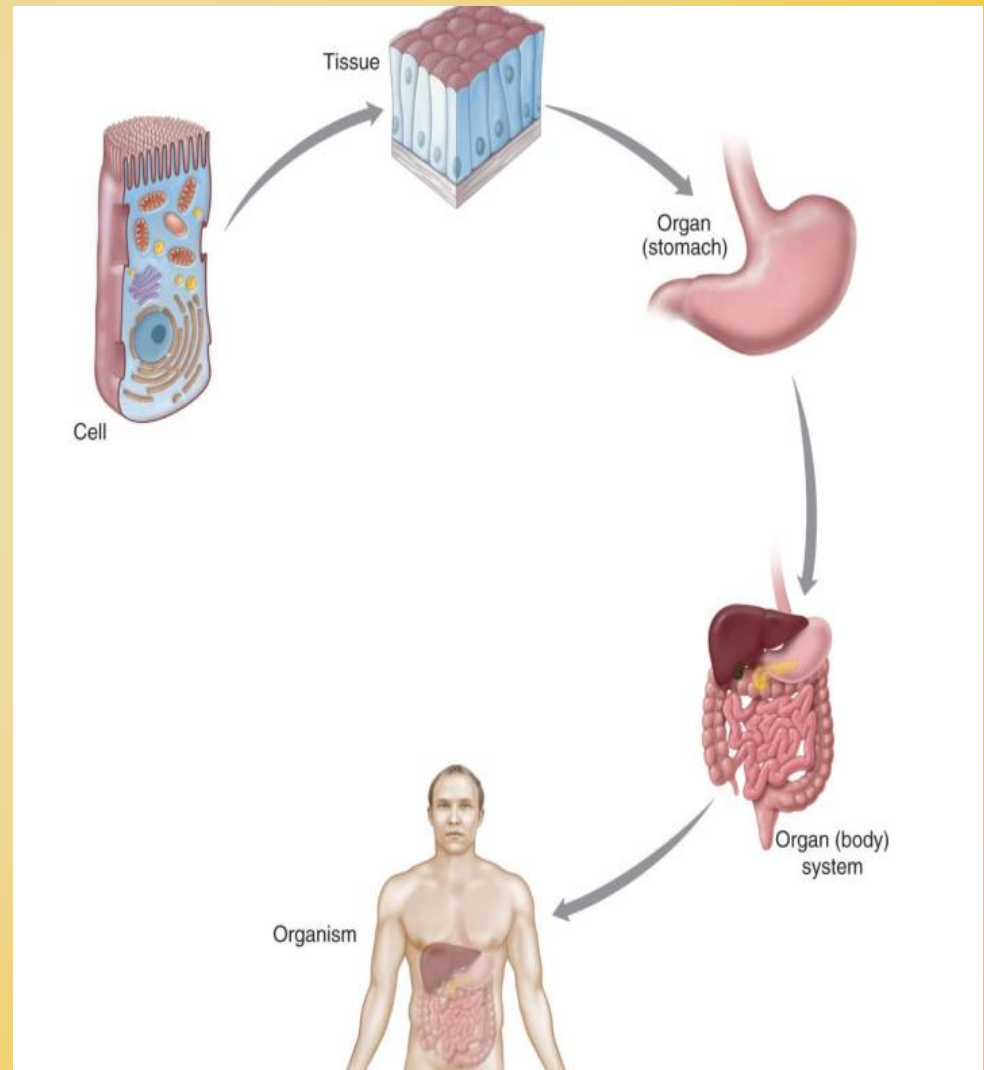
- **Cells:** A human body is said to have 10 trillion to 100 trillion cells. Cells work both individually and together. Although cells differ from one another and consist of different components.
- **Tissues:** Cells make up tissues, which are composed of similar cells working together to perform similar tasks. The four types of body tissues are muscle, connective, nerve, and epithelial.

Levels of Organization

3

Organs: Tissues with common functions come together to form the body's organs, which perform specialized functions.

Systems :A group of organs forms an organ (body) system, and each system has its own special purpose.



Navigating The Body

- Health care professionals need to be familiar with directional and positioning terms.
- These terms are frequently used during patient examinations, diagnostic procedures, and treatments.
- Directional terms are adjectives that help describe a complaint, symptom, body part, or process.

Body Position & Directional Terms

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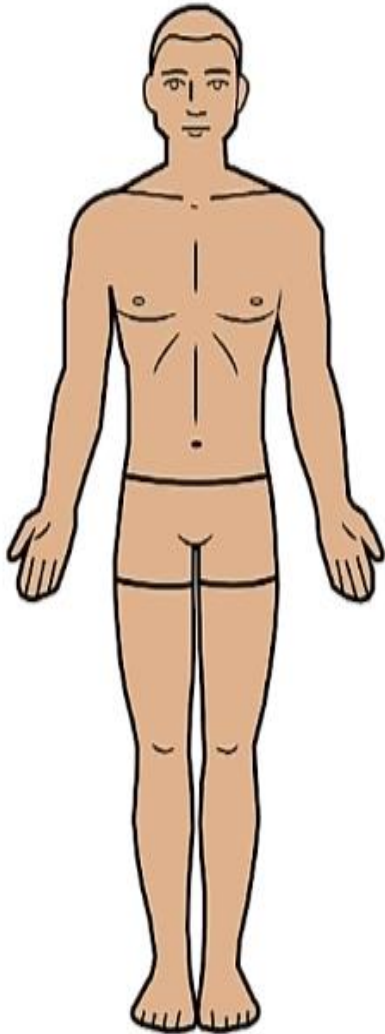
Term	Direction	Example
anterior	toward the front	The eyes are on the anterior surface of the face.
ventral	toward the belly or undersurface	The nipples were on the ventral body surface.
posterior	toward the back	The spine is on the posterior side of the body.
dorsal	toward the back or upper surface	The vertebrae are on the dorsal surface.
superior	above; toward the head	The neck is superior to the chest.
cranial	relating to the head	The brain is in the cranial cavity.

Body Position & Directional Terms

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cephalic	relating to the head	The neck is cephalic to the hips.
inferior	below; toward the soles of the feet	The knee is inferior to the hip; the stomach is inferior to the chest.
caudal	pertaining to the tail	The coccyx is caudal to the sacrum.
proximal	near the point of attachment to the trunk	The elbow is proximal to the wrist.
distal	farther from the point of attachment to the trunk	The fingers are distal to the wrist.
lateral	pertaining to the side; away from the middle	The eyes are lateral to the nose.
medial	toward the middle of the body	The nose is medial to the eyes.

Anatomical Directional Terms



Let's Simplify.....

Medial vs **Lateral**

Superior vs **Inferior**

Anterior vs **Posterior**

Proximal vs **Distal**

Superficial vs **Deep**

Unilateral vs **Bilateral**

Ipsilateral vs **Contralateral**

Medial and Lateral

Midline = Imaginary vertical line down middle of body

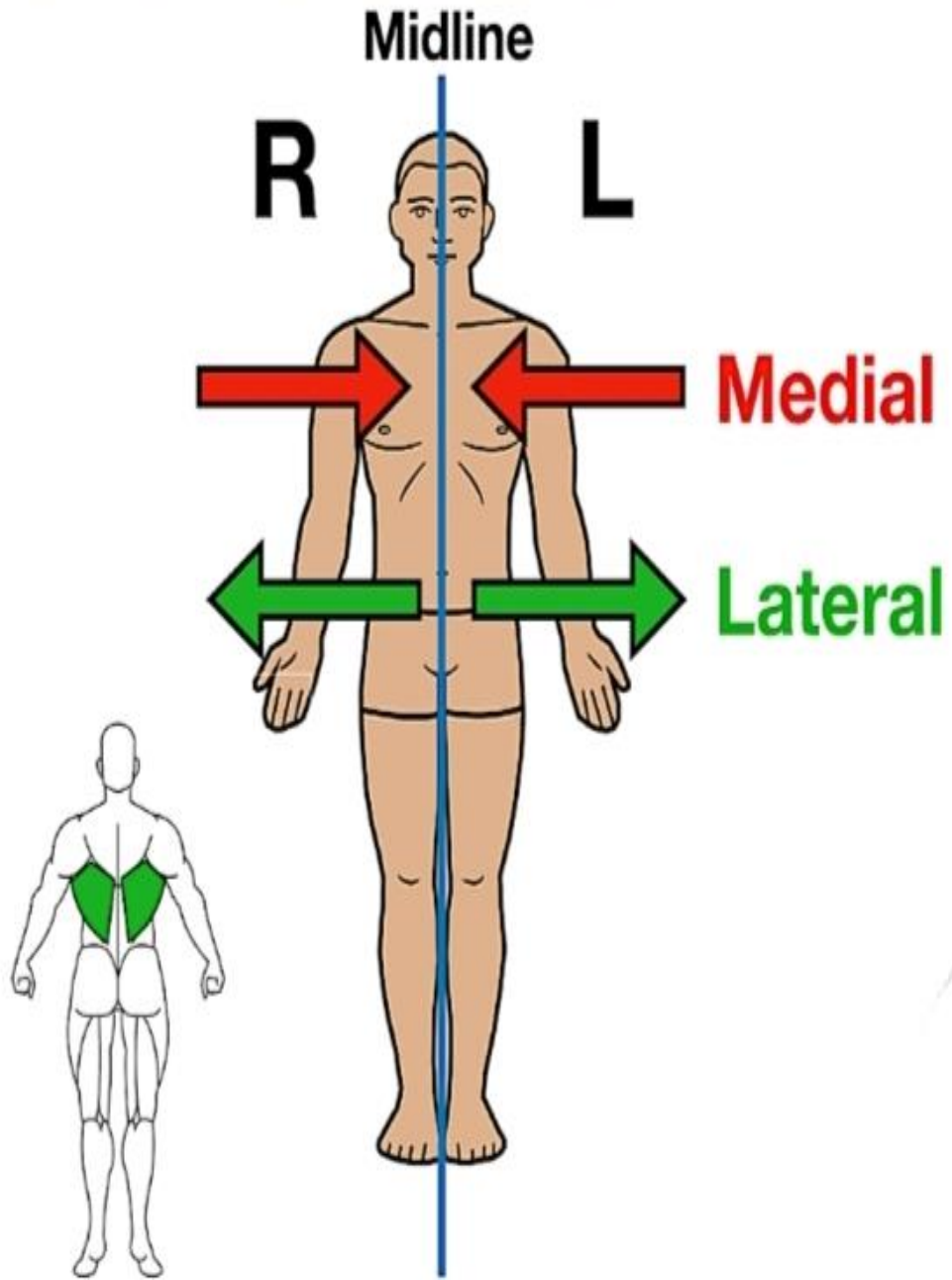
Midline = **Middle**

Medial = Toward the *midline* or *middle* of the body

Medial = **M**idline or **M**iddle

Lateral = Toward the *side* of the body

Lateral = "**Lats**"



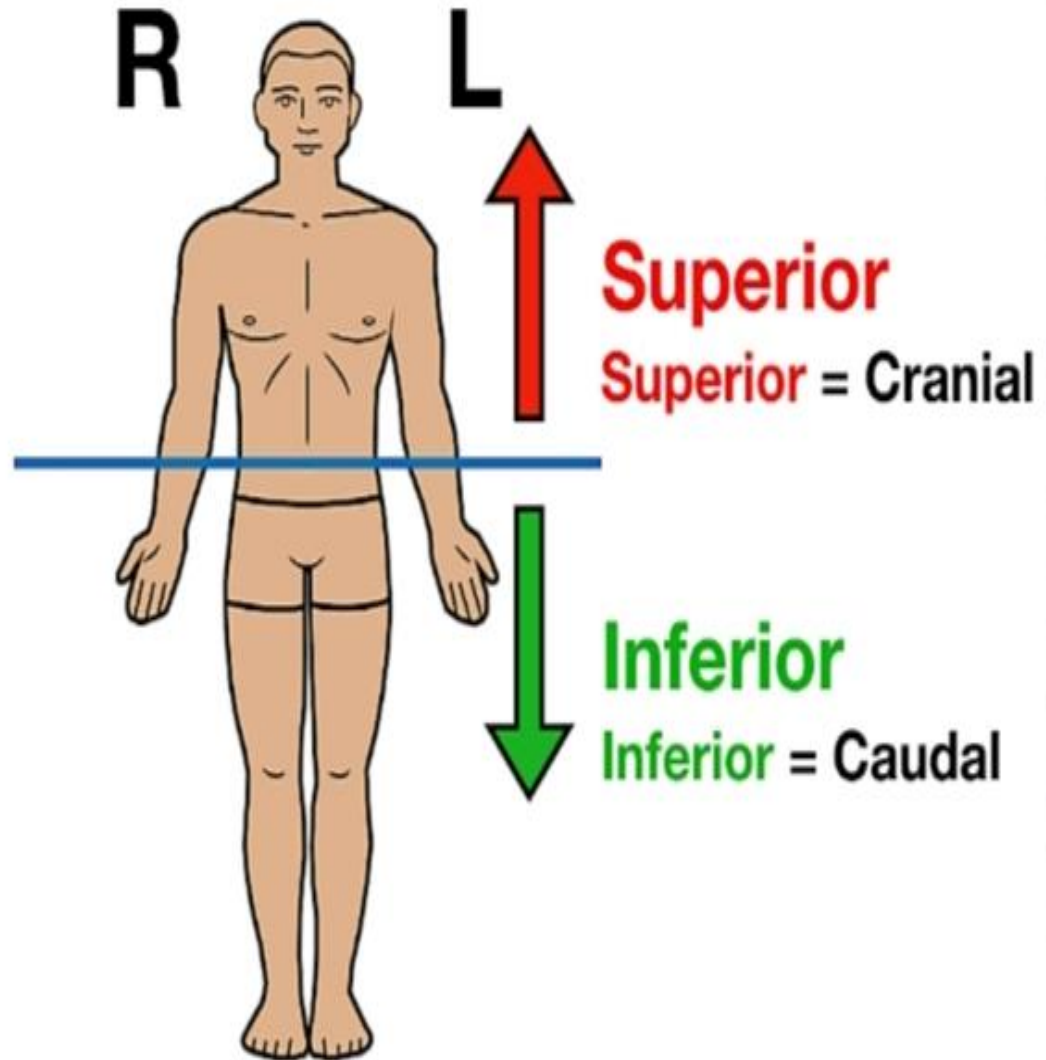
Superior and Inferior

Superior = *Above*; Toward the head

Superior = **S**kull

Inferior = *Below*; Away from the head

Inferior = **F**loor



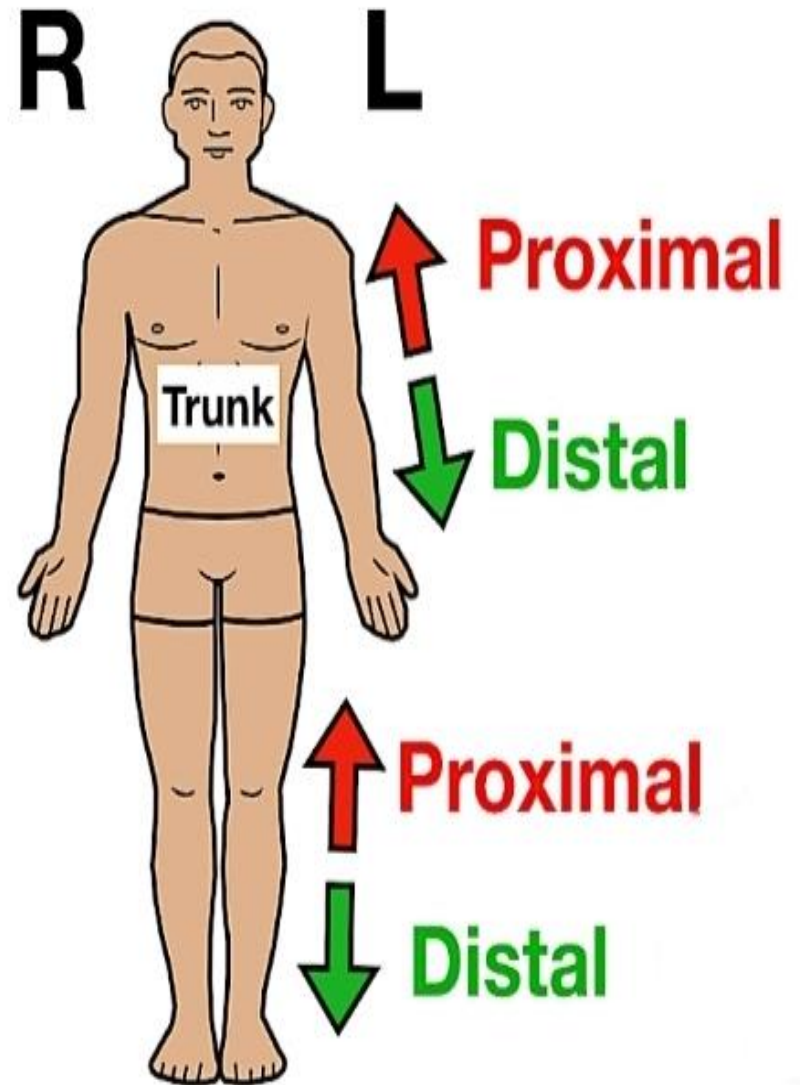
Proximal and Distal

Proximal = Toward the trunk; Near the origin

Proximal = Proximity

Distal = Away from the trunk; Far from the origin

Distal = Distant



Body Position & Directional Terms

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prone
lying flat and face
downward

The patient was placed on the operating
table in a prone position.

supine
lying flat and face upward

The patient was placed on the operating
table in a supine position.

Supine



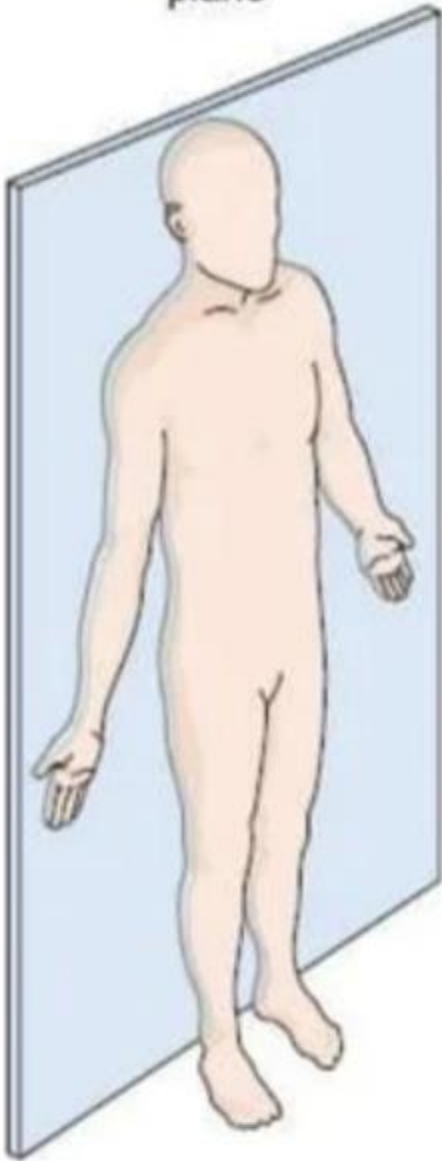
Prone



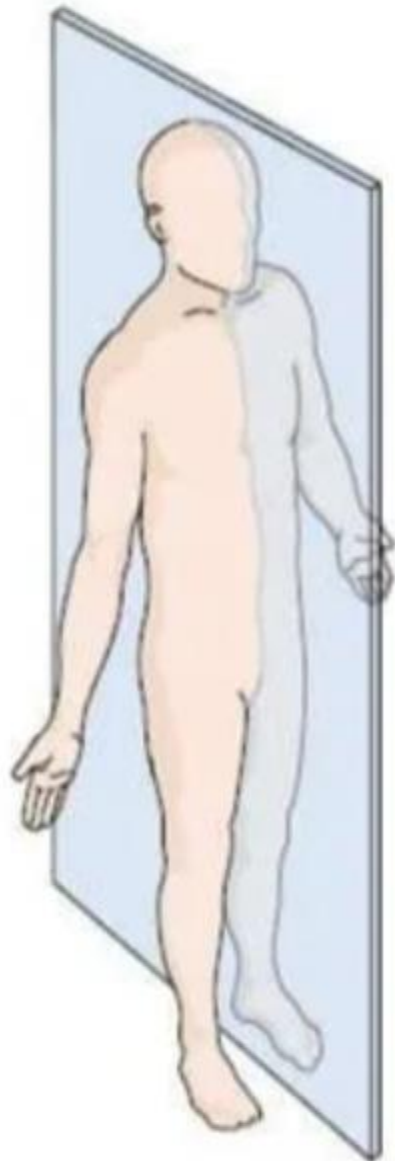
Body planes

- Body planes are imaginary surfaces within the body. Three planes are used to locate structural arrangements.
- **Frontal (coronal) plane:** separates the **front** (anterior) of the body from the **back** (posterior).
- **Sagittal plane:** divides the body or organ into **left** and **right** sides.
- **Transverse (horizontal):** separates the body into **upper** (superior) and **lower** (inferior) planes.

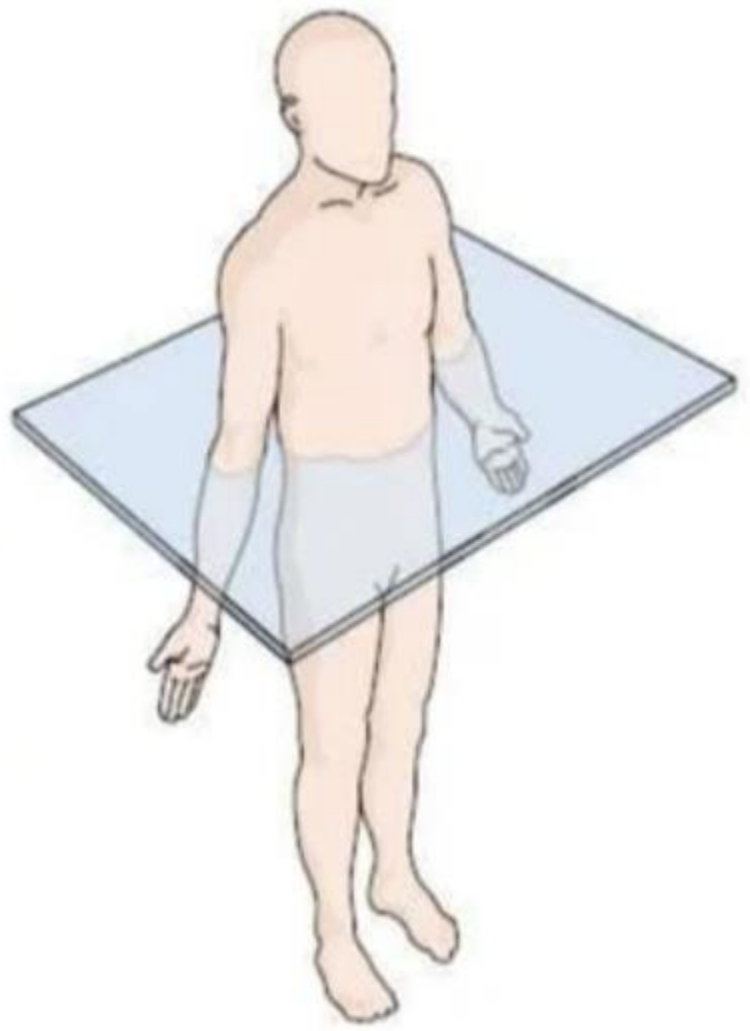
Frontal
(coronal)
plane

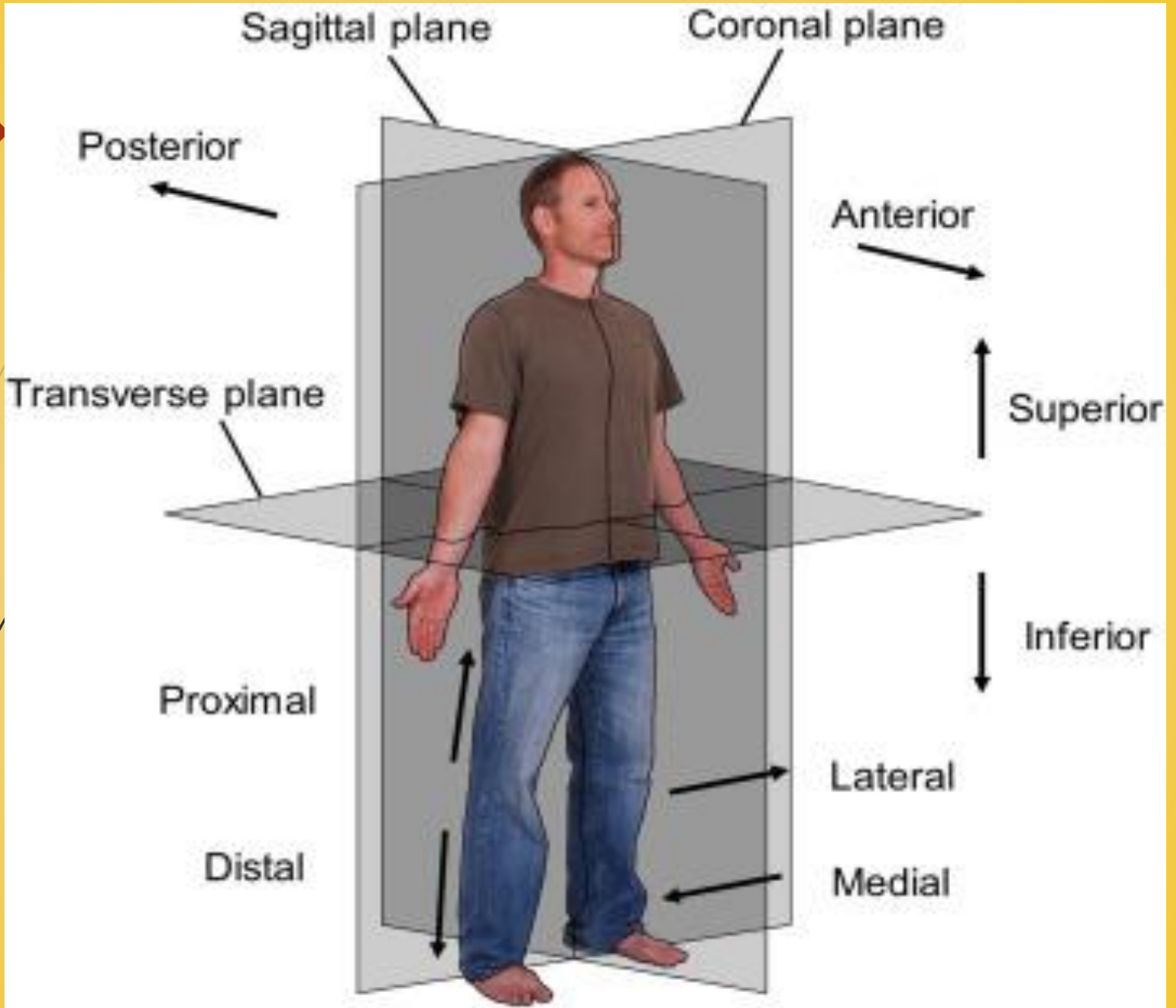


Sagittal
plane



Transverse
(horizontal)
plane

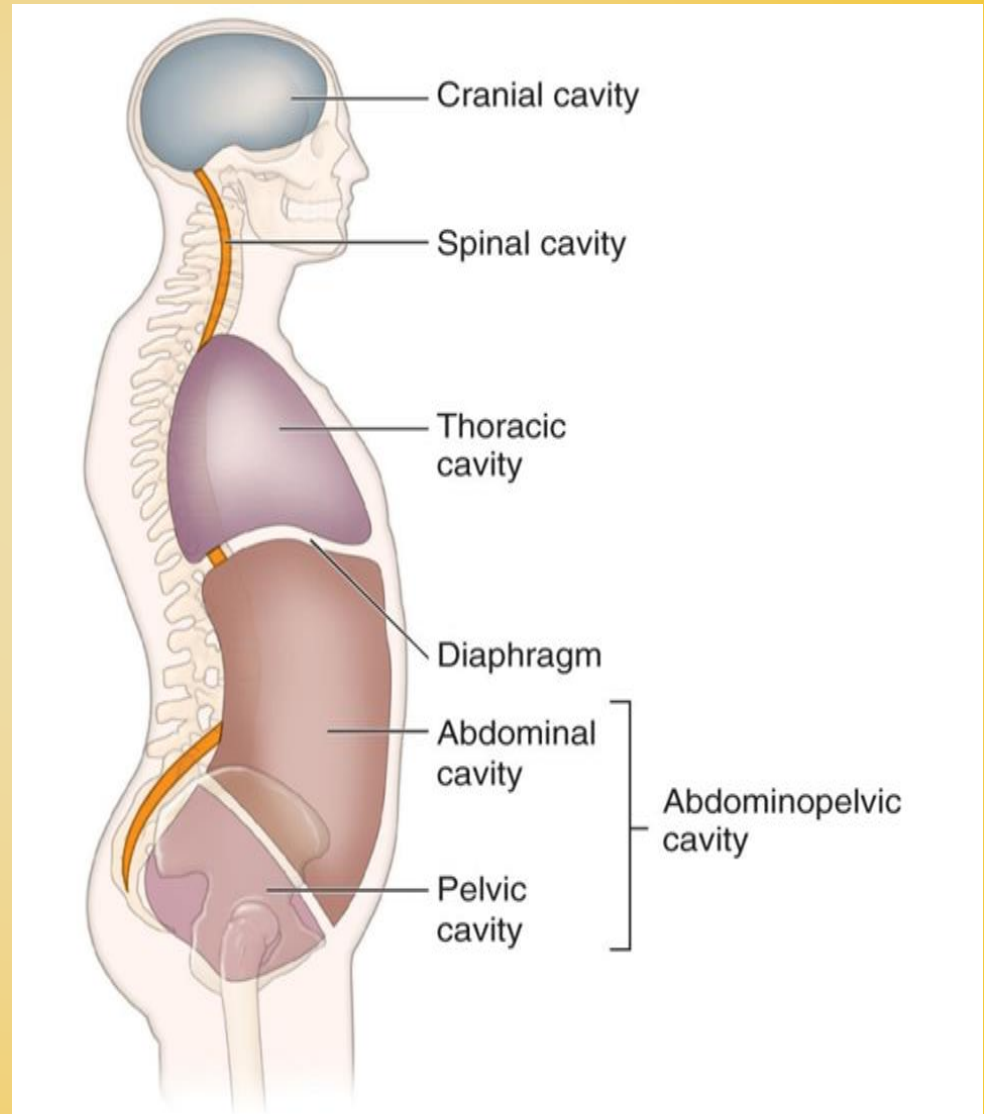




Body Cavities & Division

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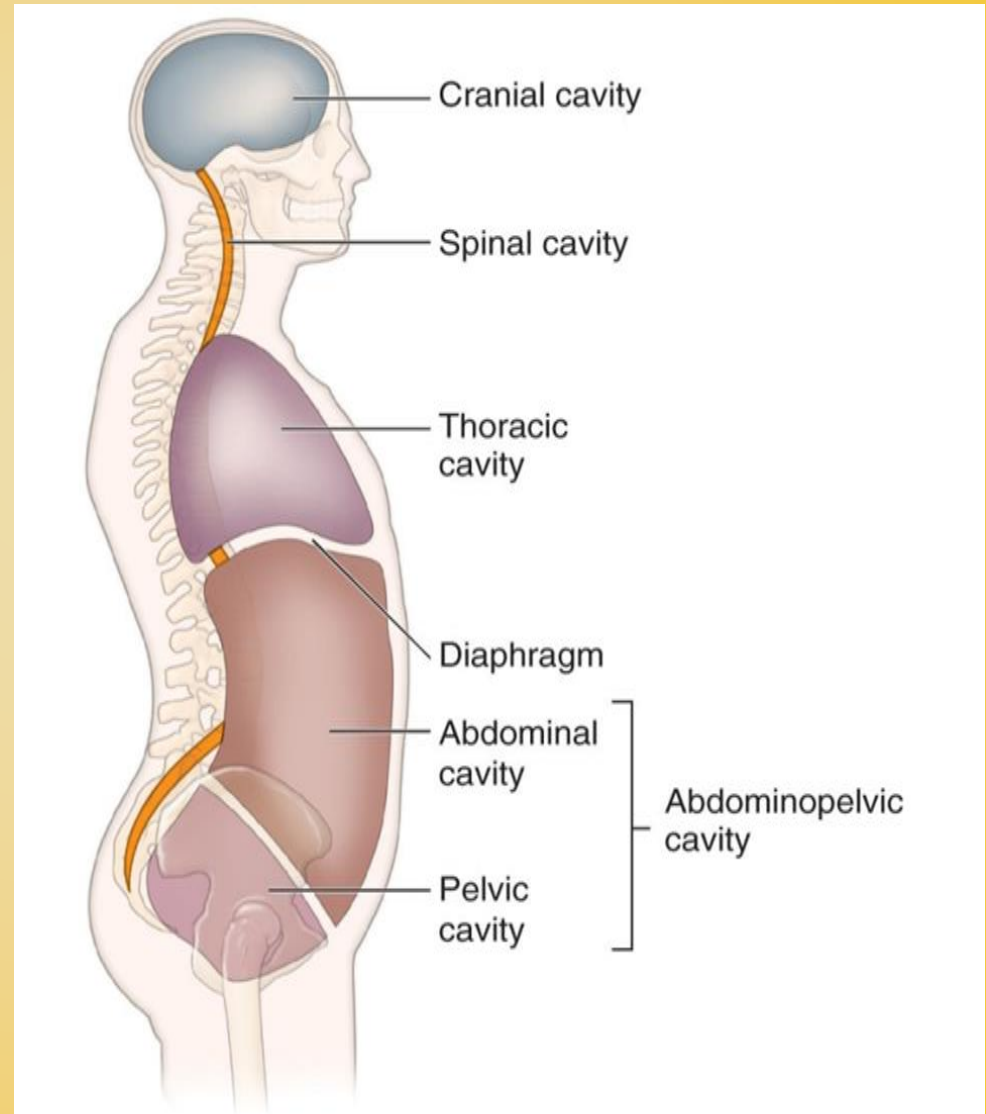
- A body cavity is defined as a hollow space that contains body organs. The body has several major cavities, including the cranial, spinal, thoracic, and abdominopelvic.
- The cranial cavity houses the brain,
- The spinal cavity houses the spinal cord.
- The thoracic cavity contains the lungs



Body Cavities & Division

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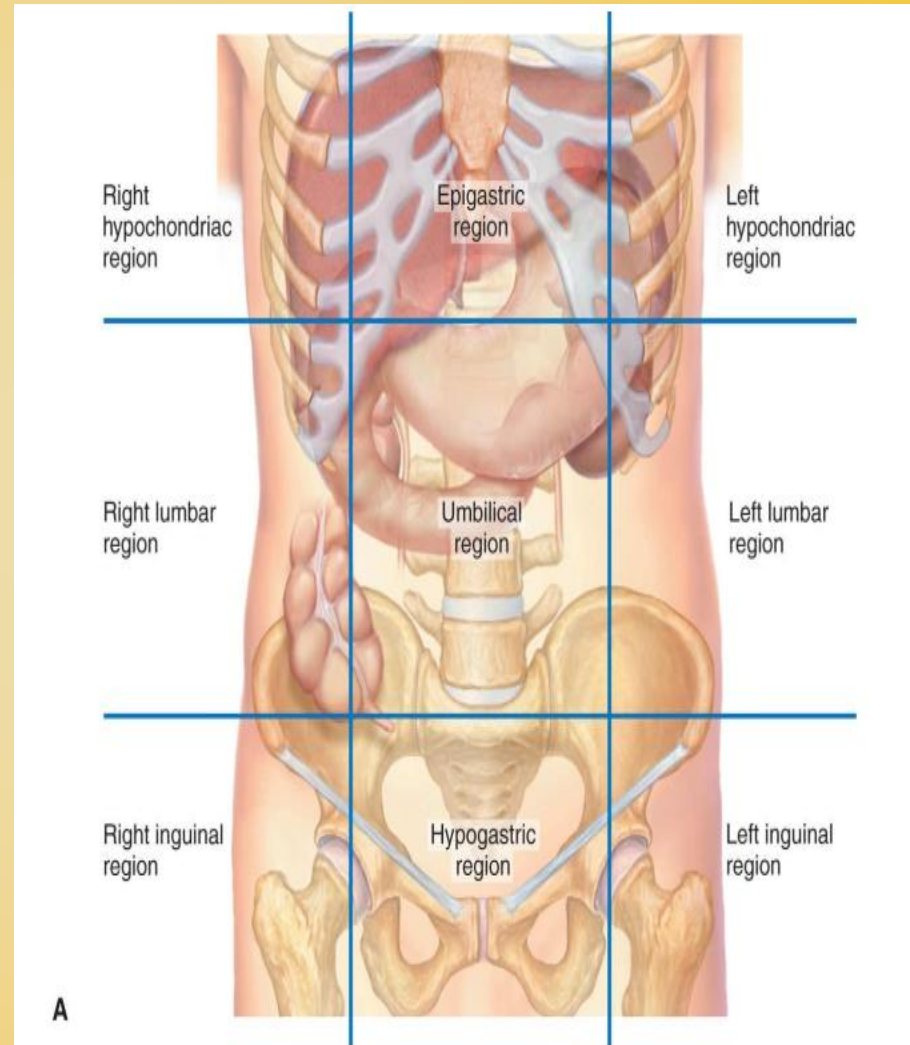
- The abdominopelvic cavity contains digestive and reproductive organs.
- The abdominopelvic cavity is divided into:
 - 1-superior abdominal cavity
 - 2-inferior pelvic cavity



Divisions of the Abdominopelvic Cavity

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- For physical examination or a surgical procedure needs to describe incisions, procedures, and location of organs.
- abdominopelvic cavity is divided into two different ways:
either **nine** regions or **four** quadrants

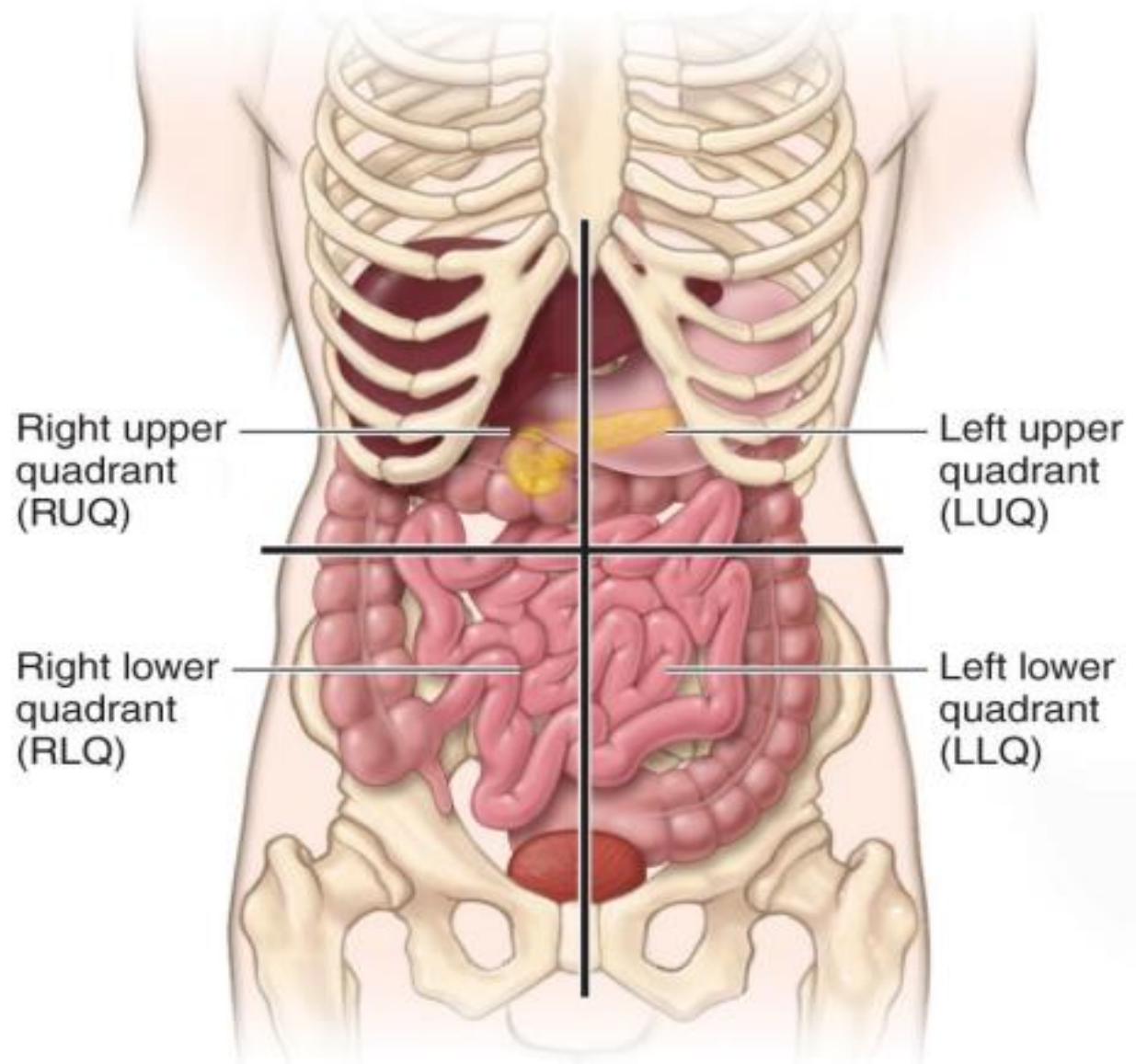


Four Quadrants of the abdomen

Term	Organs in Quadrant
right upper quadrant (RUQ)	right lobe of liver, gallbladder, portions of the pancreas, small intestines, and colon
left upper quadrant (LUQ)	left lobe of liver, spleen, stomach, portions of the pancreas, small intestines, and colon
right lower quadrant (RLQ)	contains portions of small intestine and colon, right ovary and uterine tube, appendix, and right ureter
left lower quadrant (LLQ)	contains portions of small intestine and colon, left ovary and uterine tube, and left ureter

Four Quadrants of the abdomen

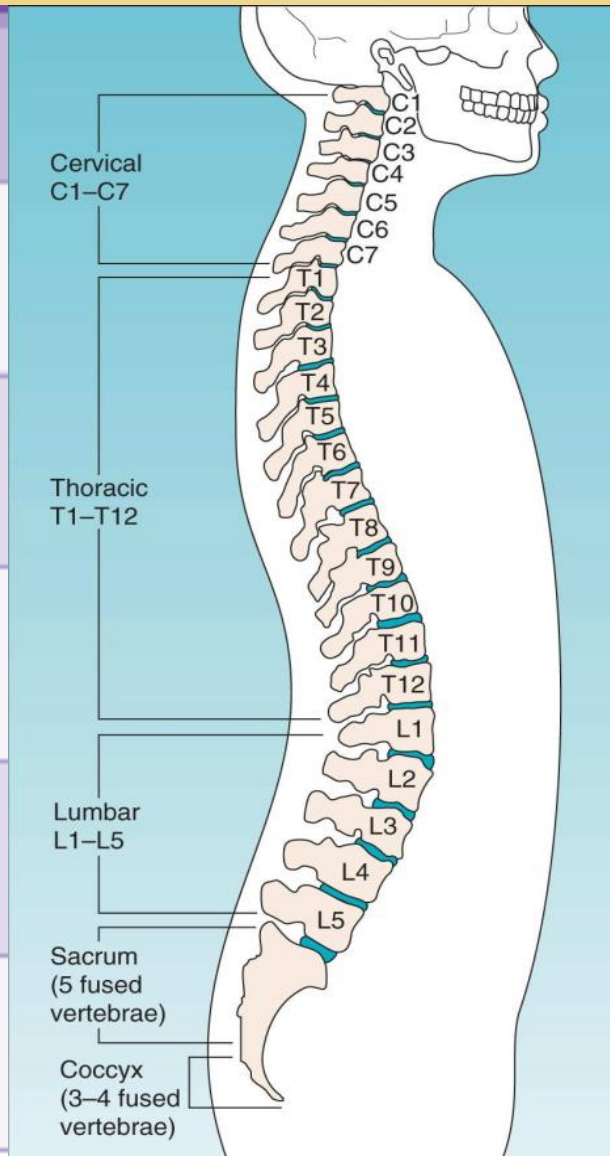
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Regions of the Spinal Column

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Region	Location
cervical	neck
thoracic	chest
lumbar	lower back below waist
sacral	lower back
coccyx	tailbone



➔ The spinal column is a series of vertebrae that extend from the head to the coccyx. include the:

cervical (C)

thoracic (T)

lumbar (L)

sacral (S)

coccyx (Co)



MEDICAL TERMINOLOGY

LEC 4

GASTROINTESTINAL TRACT

PREPARED BY:

ASSIST. LECTURER:

SAFA HAMEED MOHSIN

Contents

- 1- Anatomy and physiology of the gastrointestinal tract (G.I.T).**
- 2- Disorders of the gastrointestinal tract (G.I.T).**
- 3- Diagnostic procedures of the disorders.**
- 4- Treatment of the disorders.**

Anatomy and Physiology

- **The digestive tract** is a continuous tube beginning with the mouth and ending at the anus.
- This tract is also called the **gastrointestinal tract (GIT)** or **alimentary canal**.

- The gastrointestinal system consists of:

1- Mouth

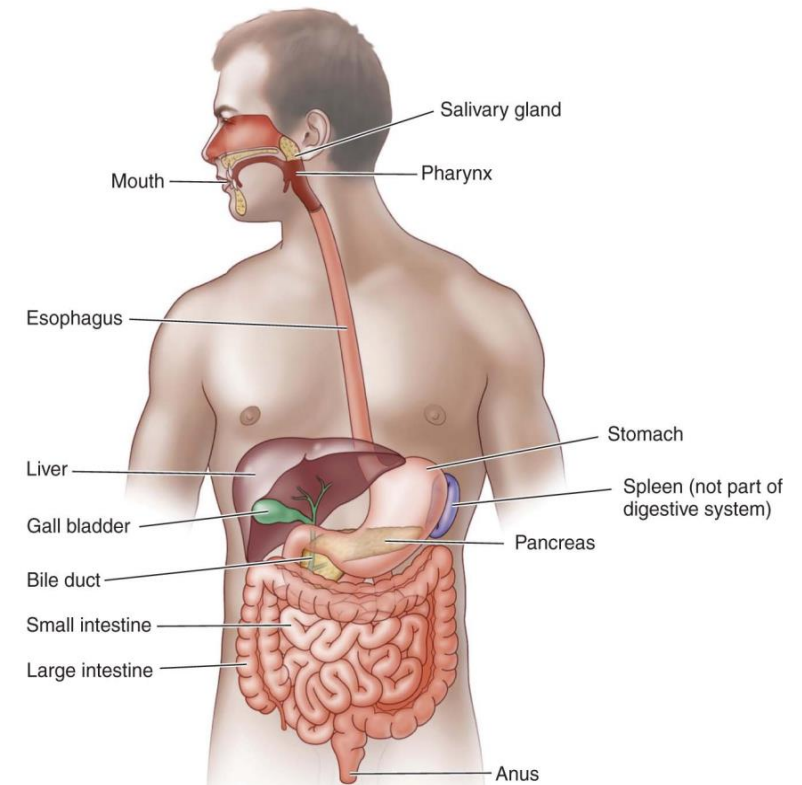
2- Pharynx

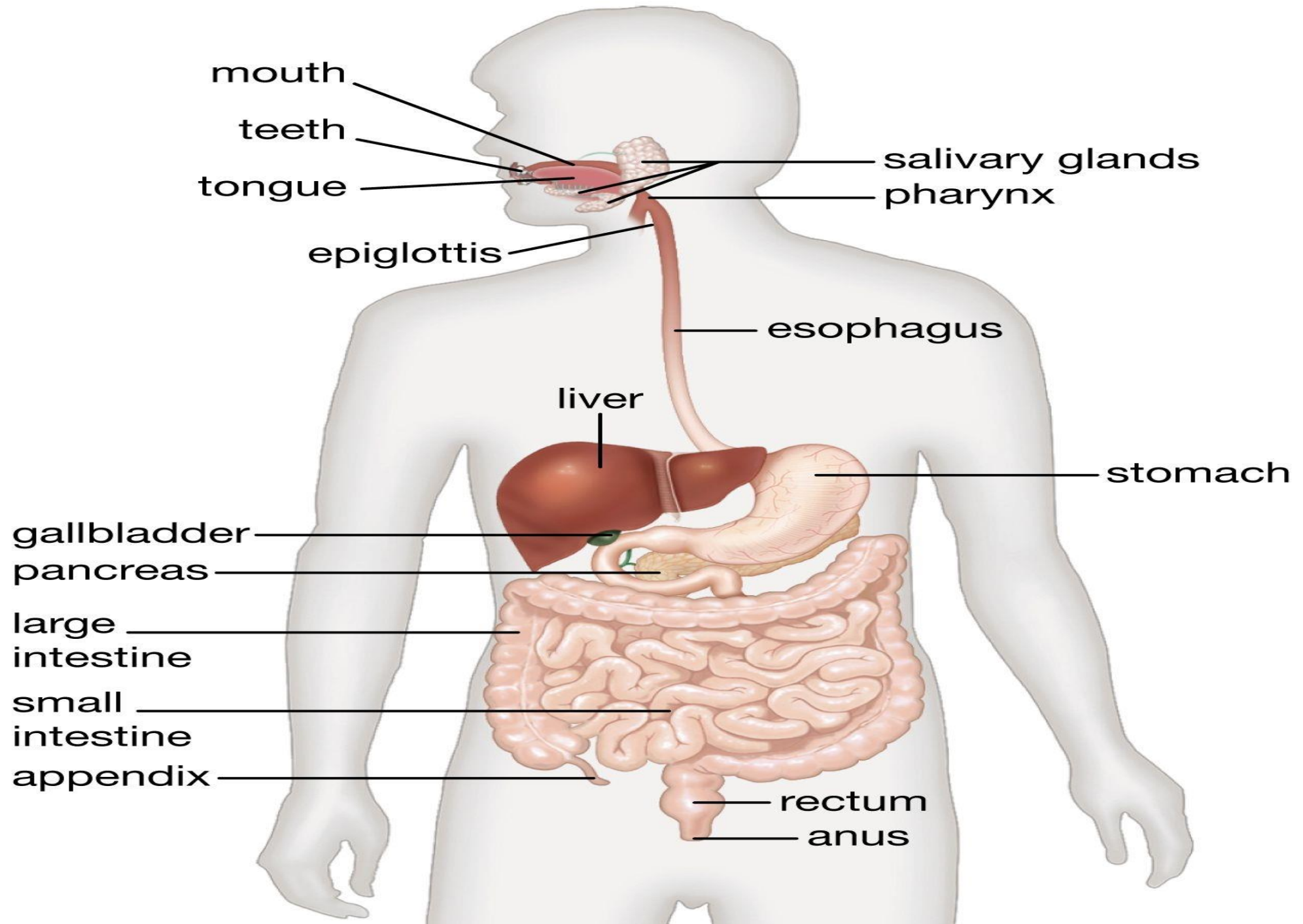
3- Esophagus

4- Stomach

5- Small intestine

6- Large intestine



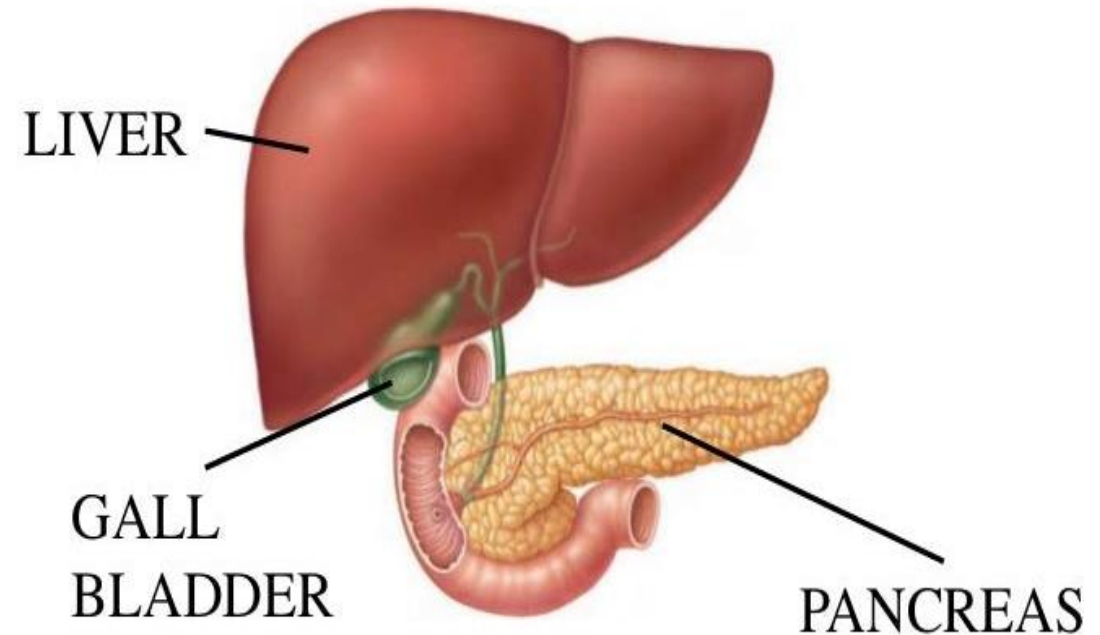


Accessory organs of the digestive system

Accessory organs of the digestive system include:

- **Salivary glands**
- **The liver**
- **Gallbladder**
- **Pancreas**

DIGESTIVE SYSTEM : ACCESSORY STRUCTURES



The GIT can be divided into:

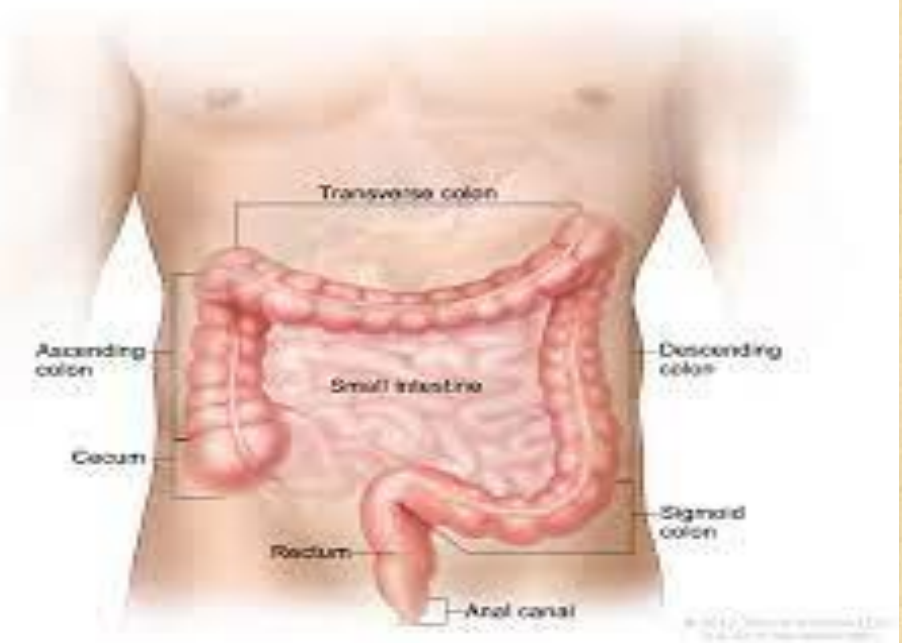
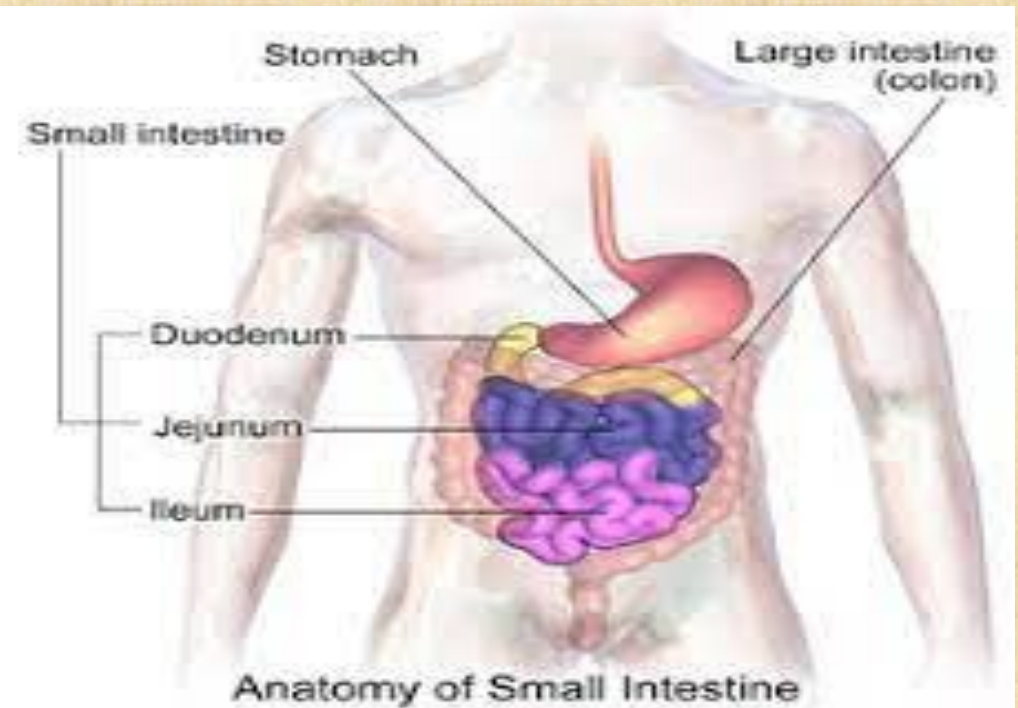
- ✓ **The upper GIT** consists of the mouth, esophagus, and the stomach.
- ✓ **The lower GIT** consists of the small intestine and the large intestine.

- **The small intestine consists of three parts:**

- 1- The first part, is the **duodenum**
- 2- The middle part is the **jejunum**
- 3- The third part, called the **ileum**

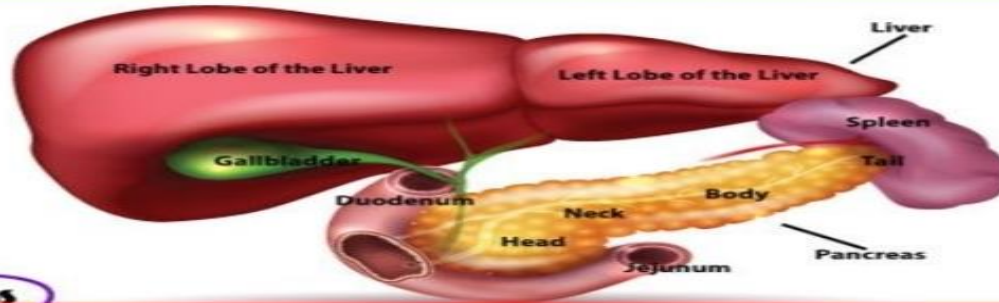
- **The large intestine consists of three parts:**

- 1- The **cecum** is the first part of the large intestine.
- 2- The **colon** is next.
- 3- The **rectum** is the end of the large intestine.



Term	Meaning
Oro / Orol	By mouth
Stomato	mouth
gingivo	gum
Glosso , lingual	tongue
pharyngo	pharynx
oesophago	oesophagus
Entero	intestine
gastro	stomach
duodeno	duodenum
jejuno	jejunum
ileo	ileum
Colo	Colon
Recto	Rectum
Procto	Rectum / anus
Appendic	Appendix

MEDICAL TERMINOLOGY OF THE GASTROINTESTINAL SYSTEM



 Nursecepts

WORD ROOT

An(o)	pertaining to the anus
Appendic(o)	referring to the appendix
Cec(o)	Pertaining to the cecum
Chol(o)	bile
Cholangi(o)	bile duct
Cholecyst(o)	gallbladder
Choledoch(o)	common bile ducts
Colon(o)	pertaining to the colon
Diverticul(o)	diverticulum
Duoden(o)	duodenum
Enter(o)	intestine
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

Disorders of the upper GI

- **Stomatitis** is the Inflammation of the mucous membranes in the mouth



- **Gingivitis** is the Inflammation of the gums



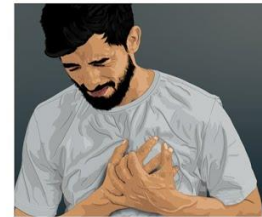
Parotiditis is an inflammation of the parotid gland, which is the largest of the salivary glands



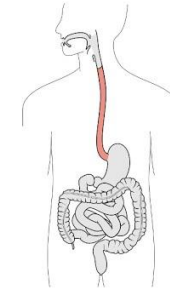
Esophagitis: inflammation of the esophagus

Esophagitis

Esophagus Inflammation



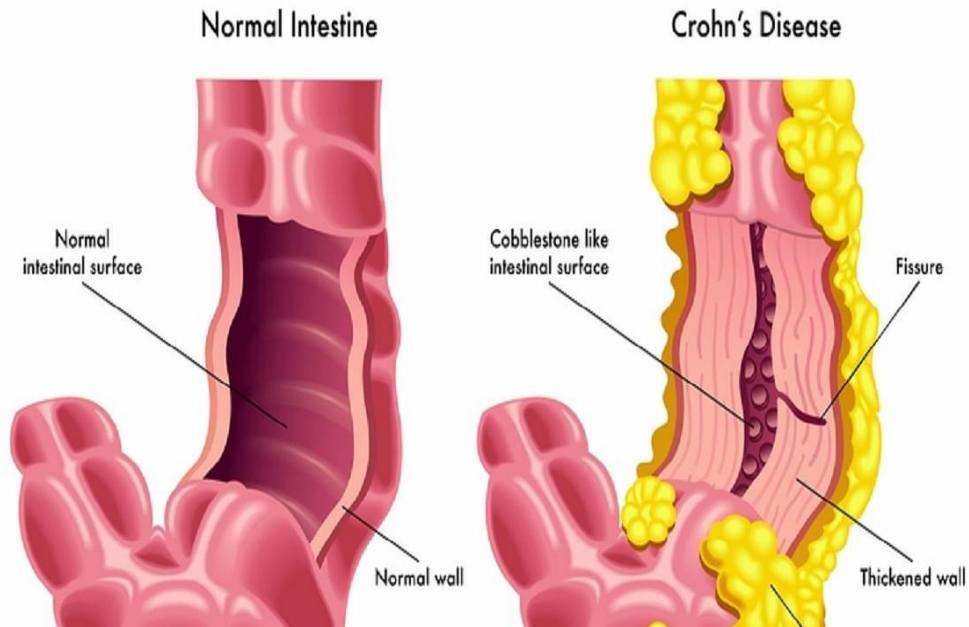
Courtesy of mvuachar.com



Disorders of the lower GIT

- **Crohn's disease:** inflammation in the mucosal lining of the intestine.

- **Appendicitis:** inflammation of the appendix.

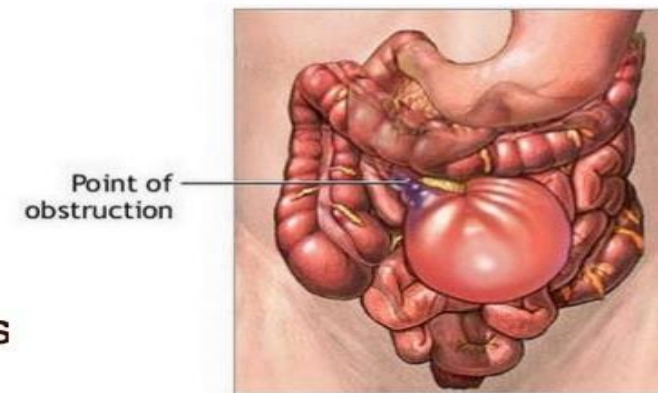


- **Inguinal hernia:** protrusion of a small loop of intestine through a weak spot in the lower abdominal wall or groin.



- **Intestinal obstruction:** refers to a lack of movement of the intestinal contents through the intestine.

INTESTINAL OBSTRUCTION

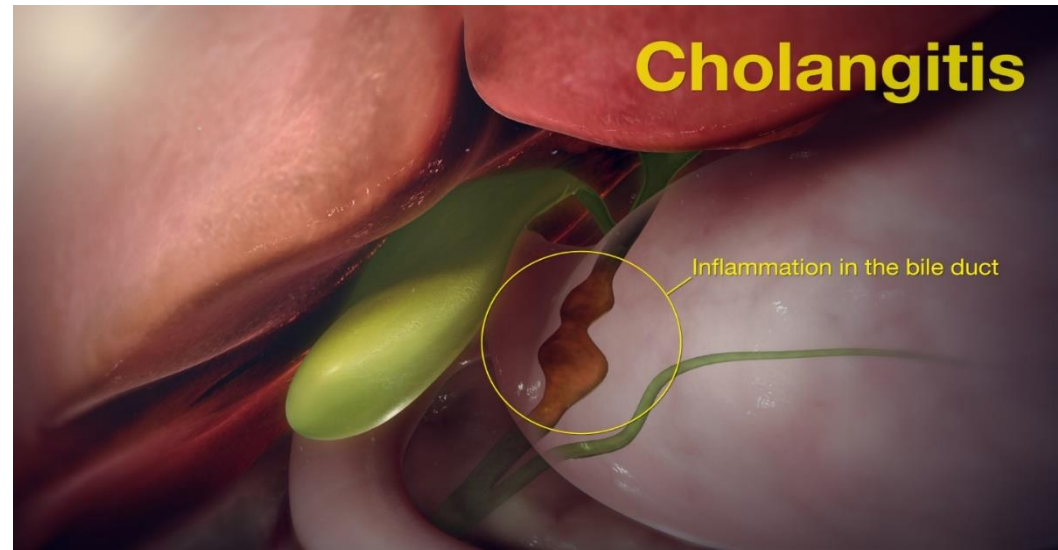


SWATILEKHA DAS
M.SC NURSE

Disorders of the Accessory Organs

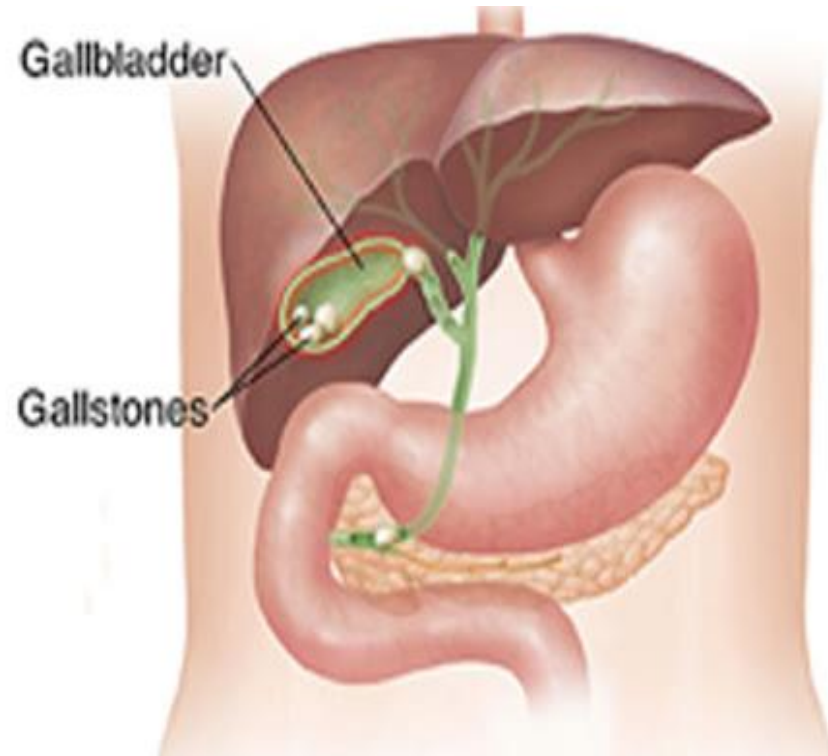
Many of the conditions that affect the digestive system accessory organs are obstructions caused by stones, tumors, or inflammatory processes.

- **Cholangitis**: inflammation of a bile duct

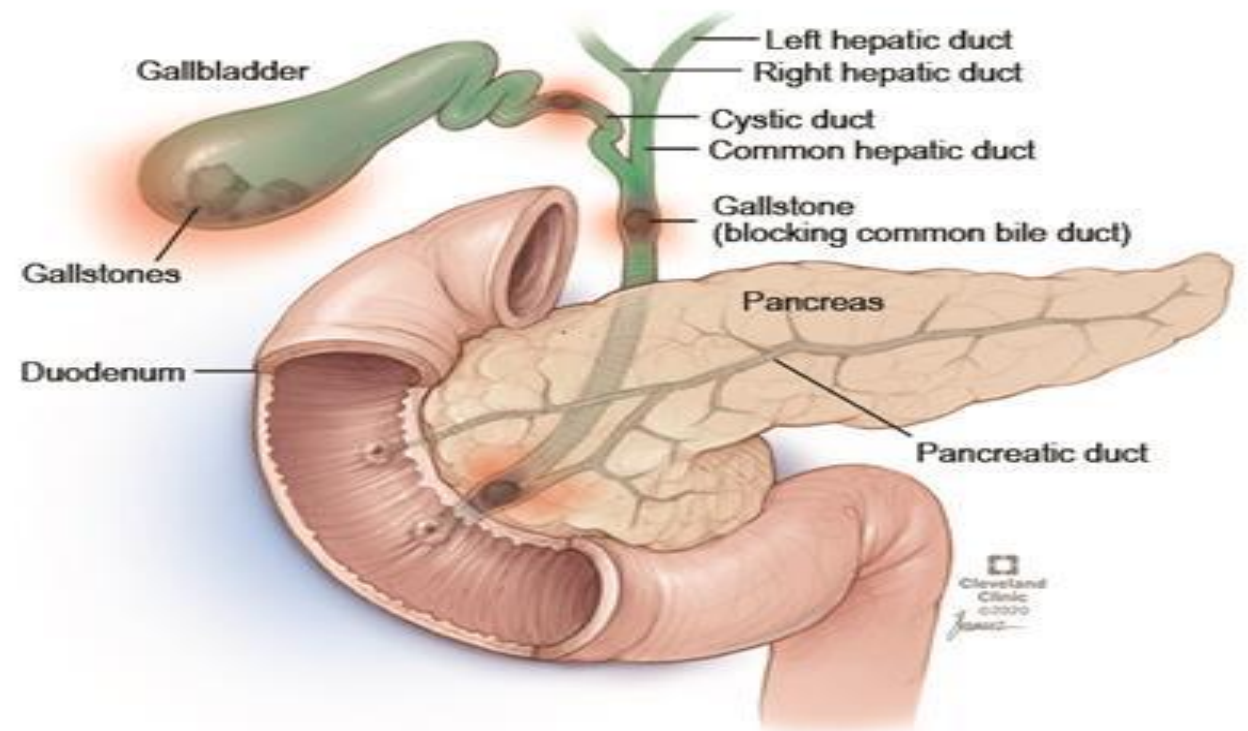


- **Hepatitis**: inflammation of the liver

- **Cholelithiasis:** a condition in which calculi or stones reside in the gallbladder or bile ducts



- **Cholecystitis:** inflammation of the gallbladder

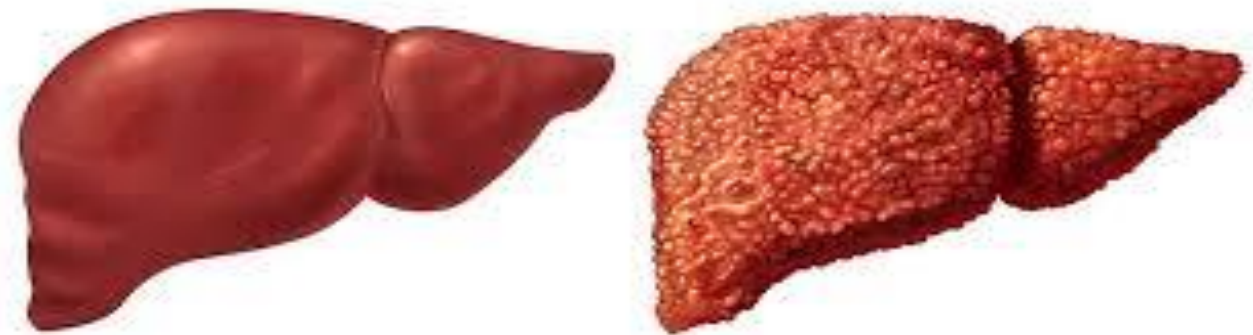
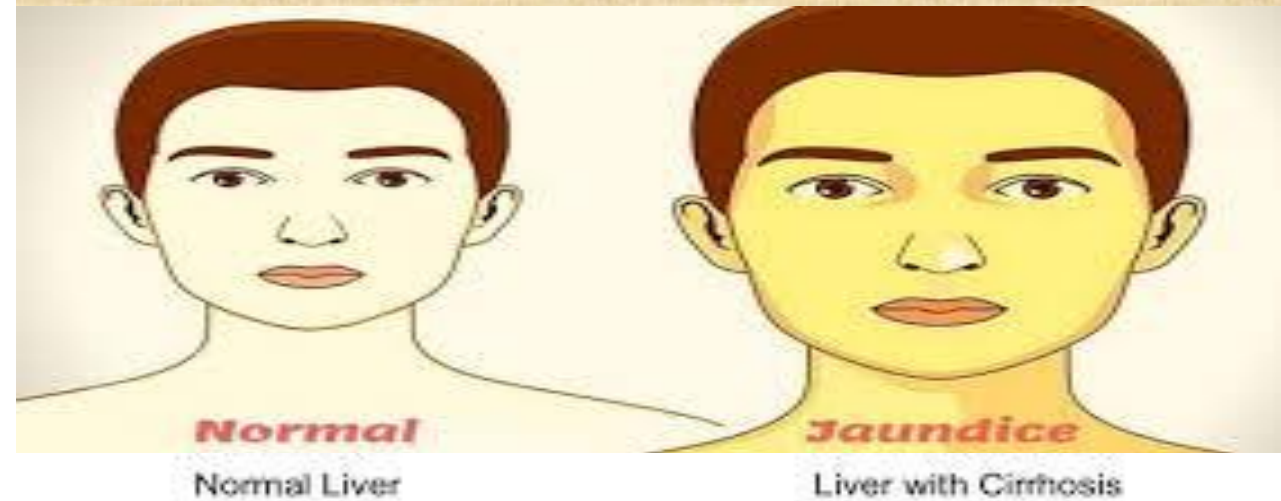


Irritable bowel syndrome (IBS):

a condition characterized by abdominal pain, constipation (infrequent bowel movements with hardened feces), diarrhea, gas, and bloating

Jaundice: a symptom of hepatitis characterized by a yellowing of the skin and eyes as a result of bile accumulation

Cirrhosis: chronic liver disease characterized by inflammation and scar tissue formation; it typically results from alcoholism or hepatitis.



Diagnostic procedures

- **Gastroscope** lighted instrument (endoscope) for visually examining the stomach
- **Gastrosopy** visual examination of stomach by lighted instrument (endoscope)
- **Nasogastric tube** a flexible tube passed through the nose and into the stomach to deliver nutrition or to aspirate (suction out) contents

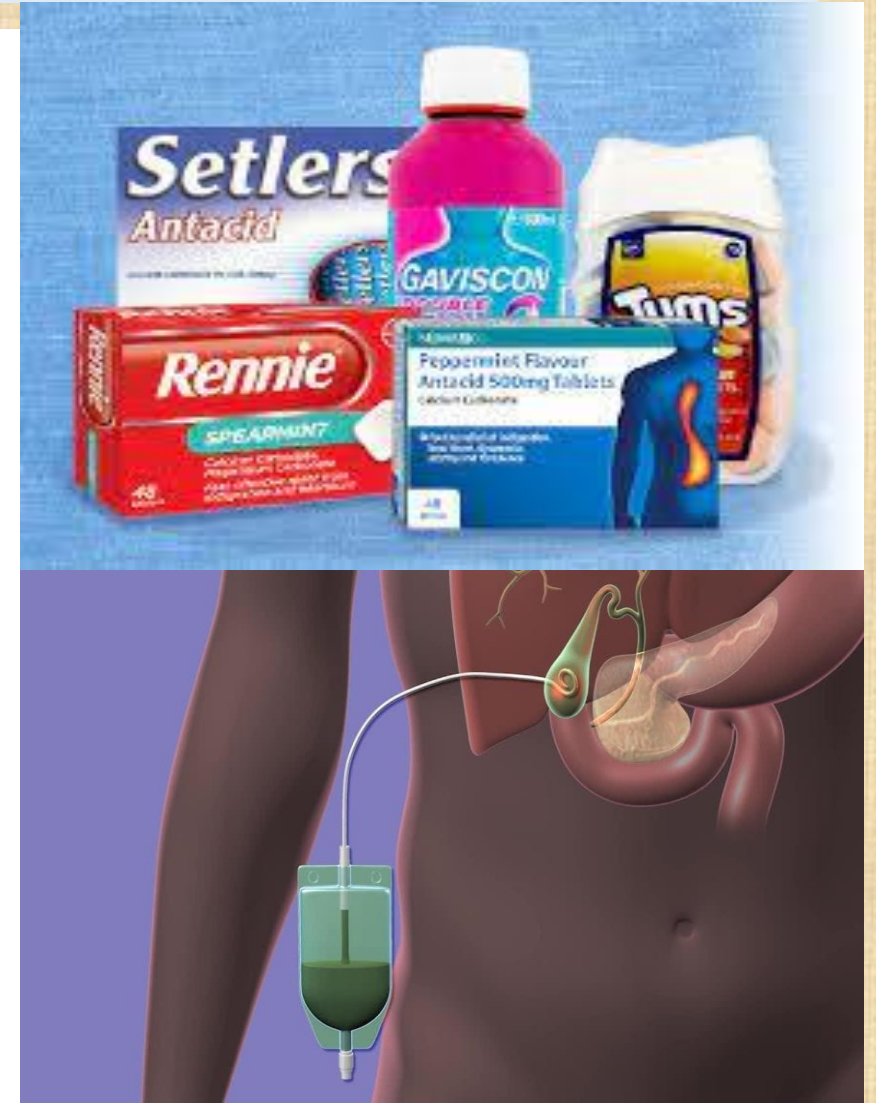


© AboutKidsHealth.ca



Treatments of the disorders

- **Antacids**: medications used to reduce or neutralize acidity.
- **Antidiarrheal** drugs that relieve diarrhea by absorbing the excess fluid or by decreasing intestinal motility.
- **Antiemetic** drugs used to relieve vomiting.
- **Cholecystectomy** surgical removal of the gallbladder.



Practice and Practitioner

- **Gastroenterologists**

(physicians specializing in disorders of the stomach and intestines)

- **Proctologists**

(physicians specializing in disorders of the anus and rectum)

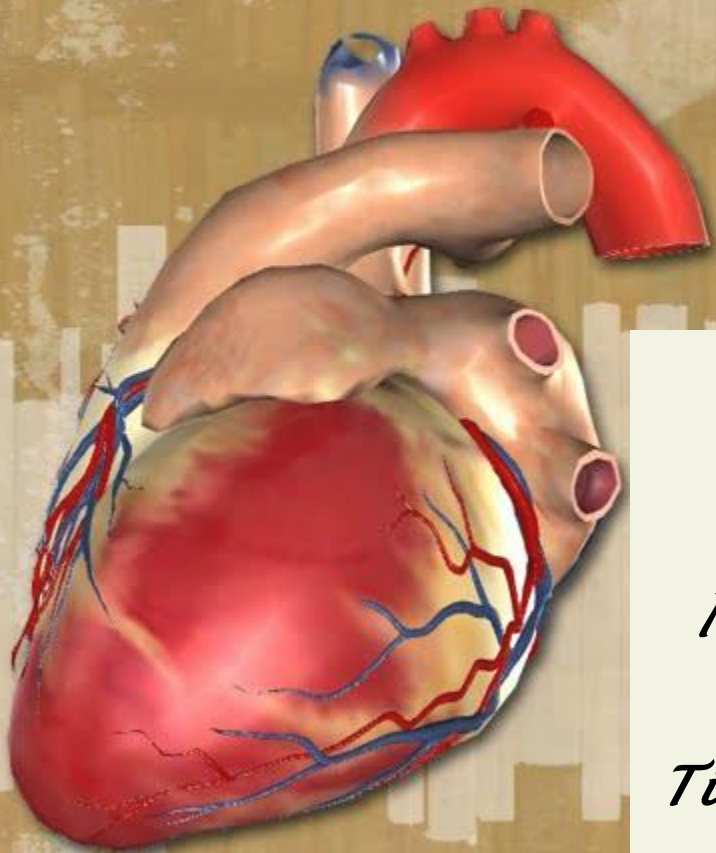




Medical Terminology

of the

Cardiovascular System



*Assistant Lecturer:
Safa Hameed Mohsin*

*MSc. Pharmacology and Toxicology
Dept. of Pharmacology
Tikrit university- College of pharmacy*

Introduction

- The cardiovascular system is made up of:

A-Heart

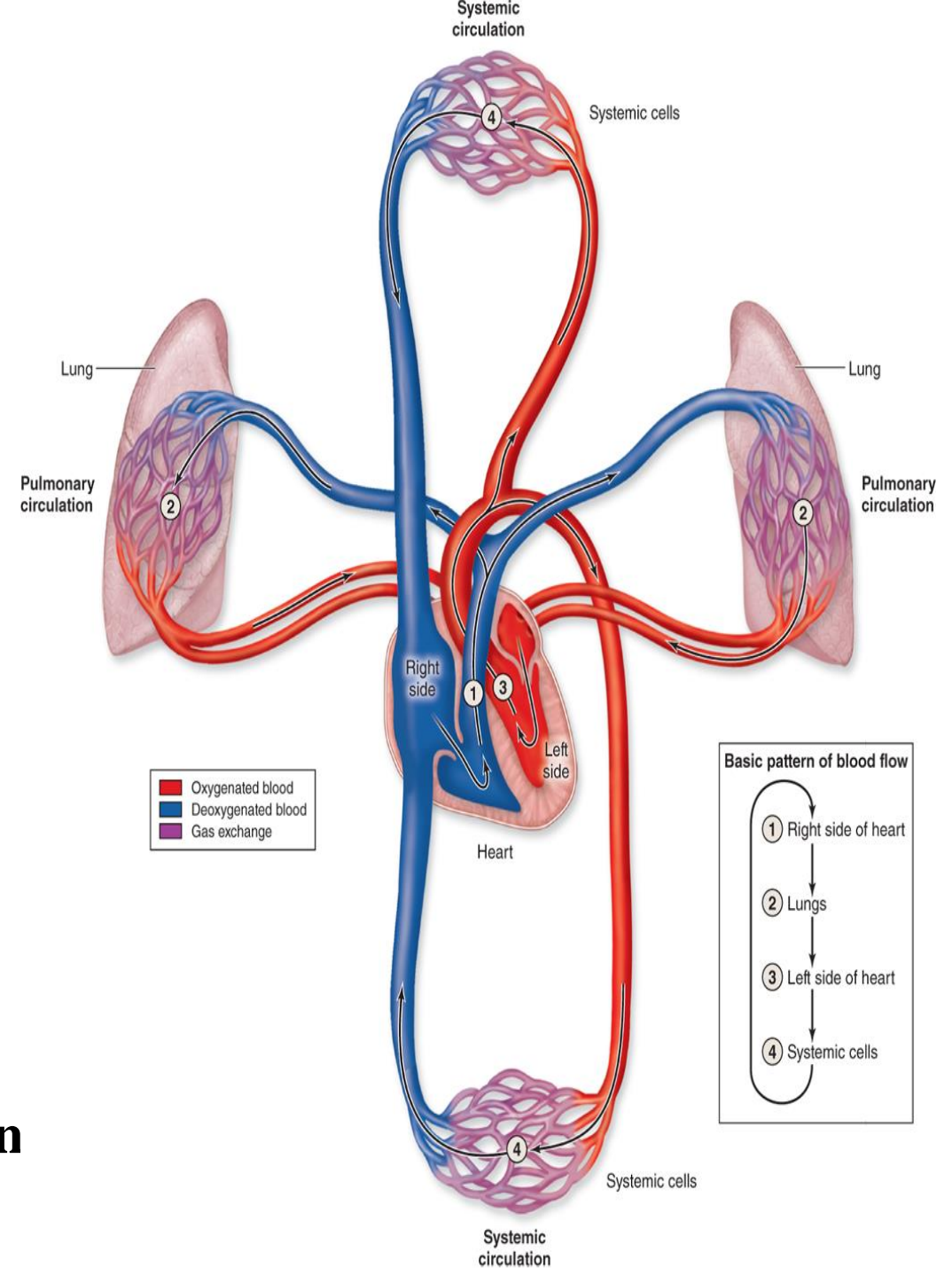
B-Blood vessels, which transport blood.

- The blood vessels include:

1- Arteries (carrying blood away from the heart)

2-Veins (carrying blood toward the heart)

3-Capillaries (vessels between the arteries and vein



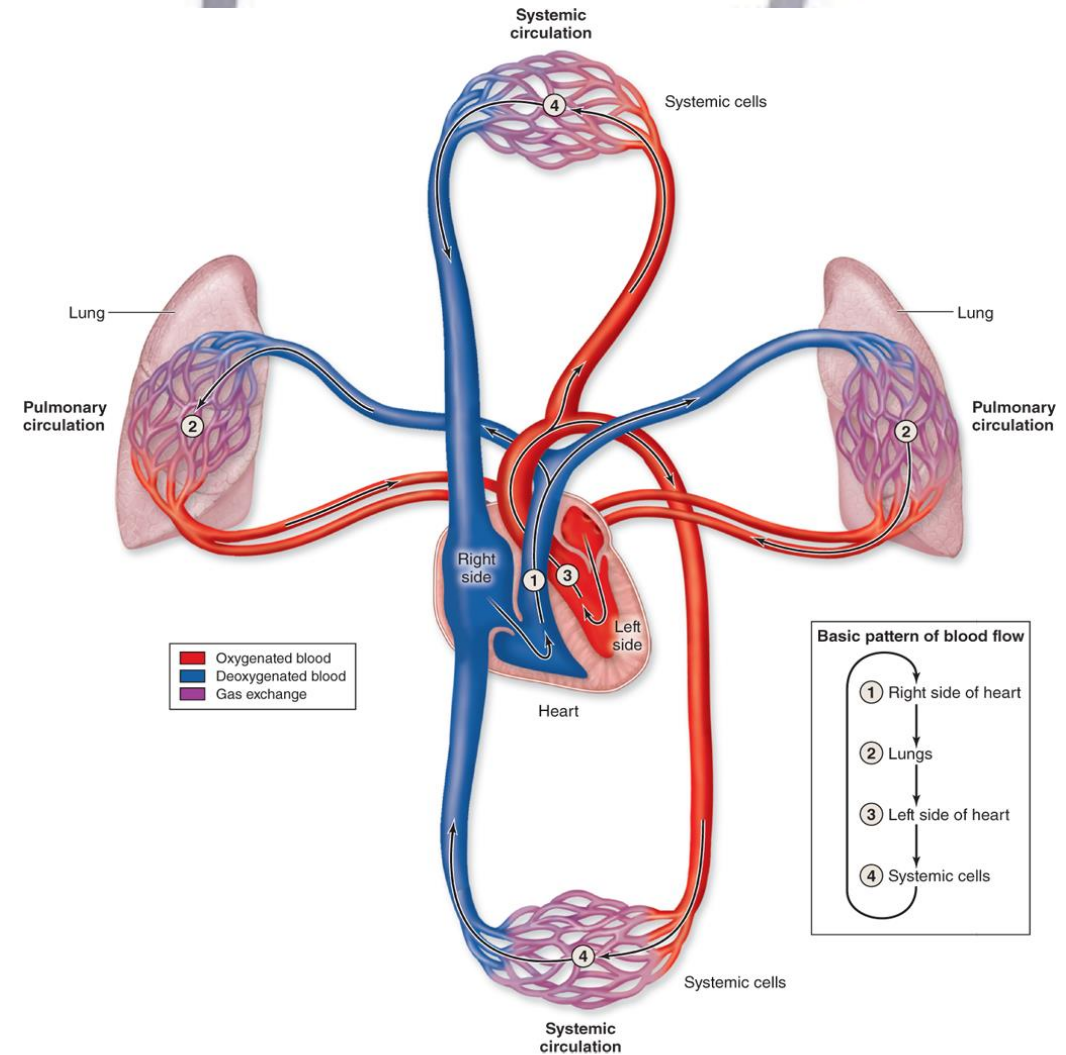
The function of the cardiovascular system

The function of the cardiovascular system

- The transport system that delivers **O₂** and **nutrients** to the body's cells, returns **CO₂** and **wastes** to be eliminated.
- Helps regulate body temperature.

The cardiovascular system, divide into:

- The **pulmonary** circuit
- The **systemic** circuit



Word Parts related to CVS

Word Part	Meaning
angi/o	vessel
aort/o	aorta
arteri/o	artery
ather/o	fatty
atri/o	atrium
brady-	slow
cardi/o	heart
coron/o	crown; encircling, such as in the coronary blood vessels encircling the heart
-ectasis	dilation, expansion
electr/o	electricity
-emia	blood
endo-	within, inner

Word Parts related to CVS

-gram	written record
hem/o	blood
hemat/o	blood
isch	restricting, thinning
my/o	muscle
peri-	around, surrounding
phleb/o	vein
-stenosis	a narrowing

tachy-	fast
thromb/o	clot
valv/o	valve
valvul/o	valve
varic/o	dilated
vas/o	vessel
ven/o	vein
ventricul/o	ventricle

Structure of the heart

The Heart

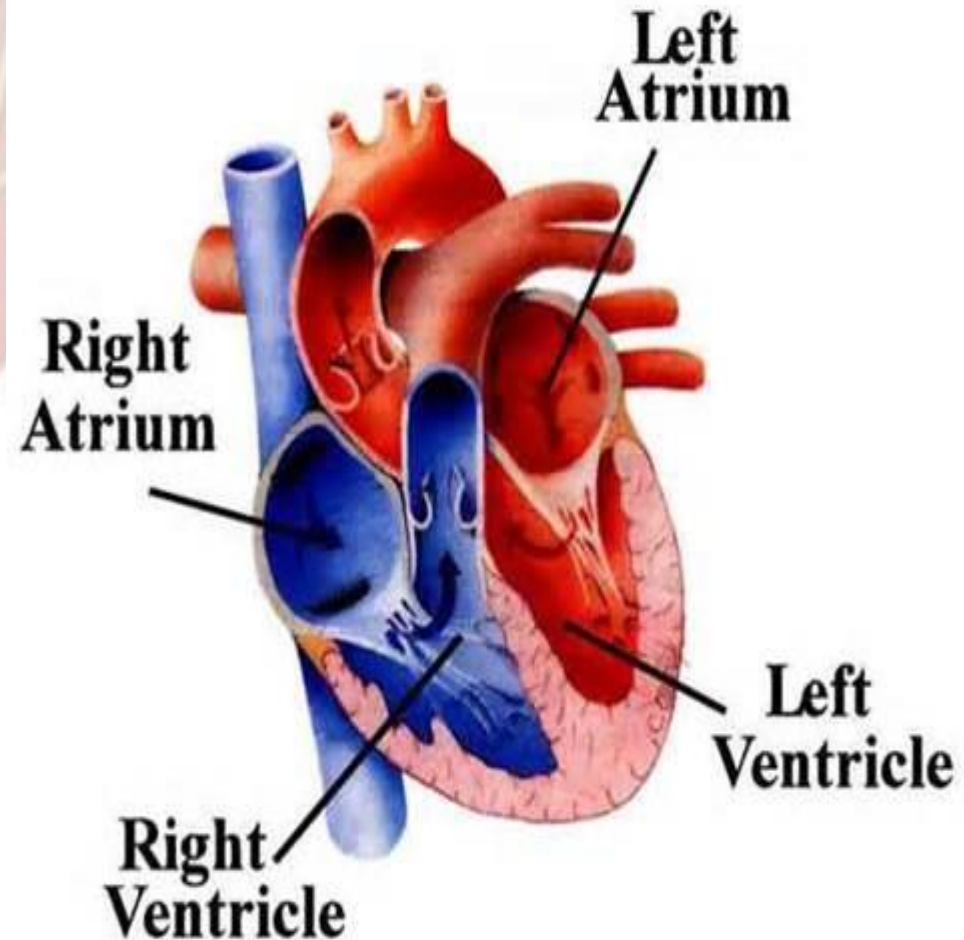
- The heart is a four-chambered hollow organ with three layers.
- The chambered of the heart are:

Right atrium

Right ventricle

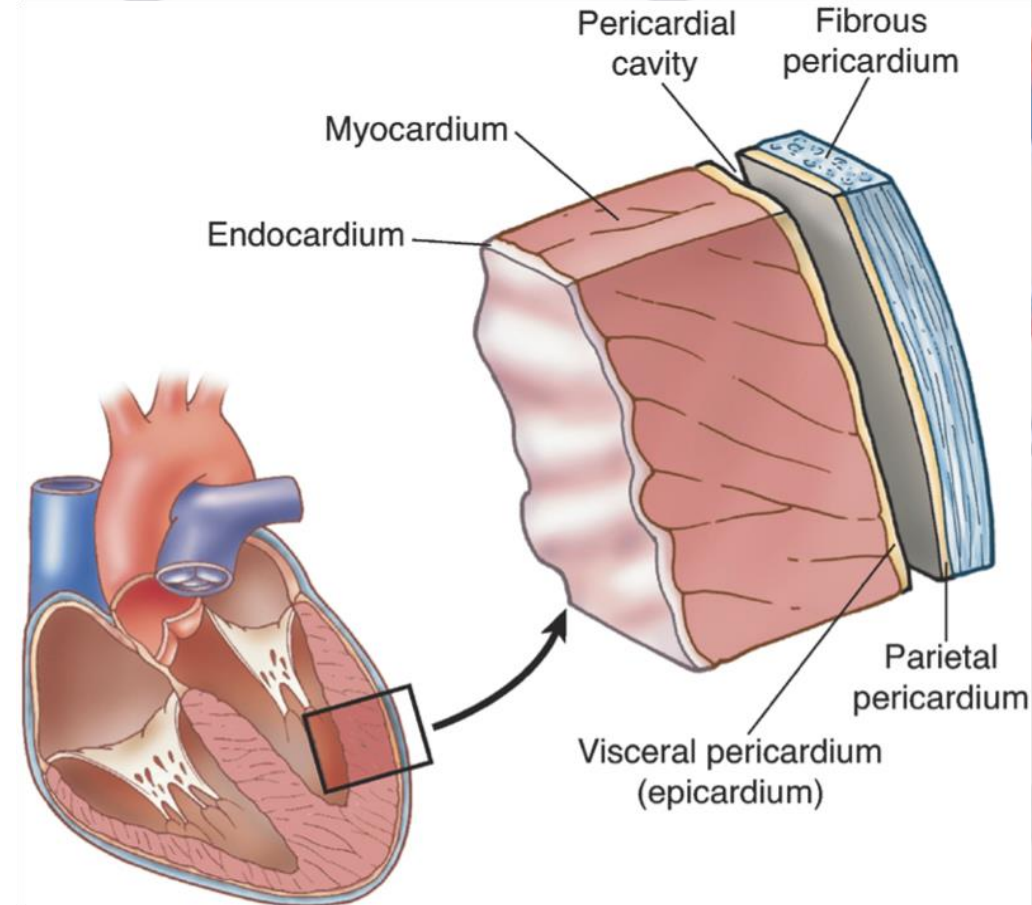
Left atrium

Left ventricle



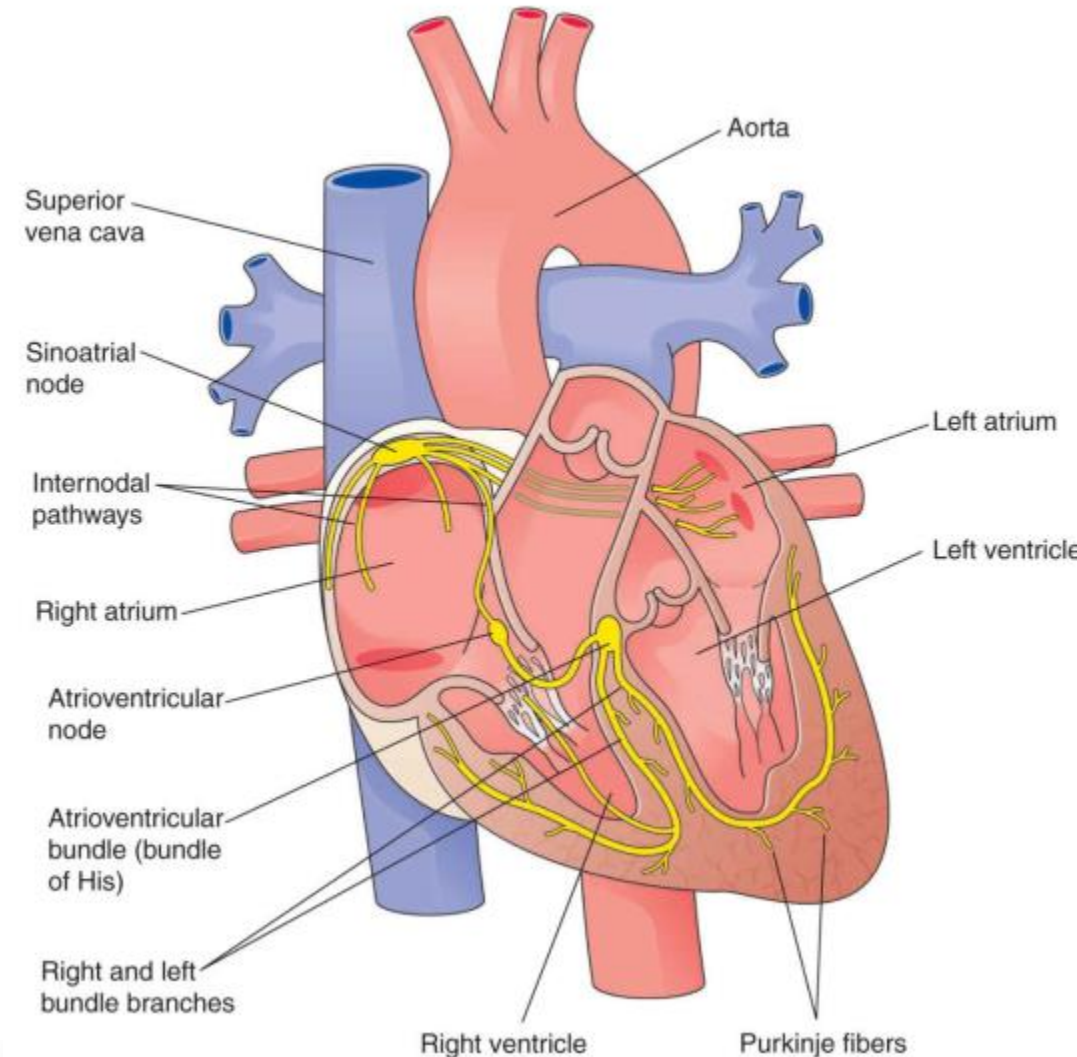
The layers of heart muscle

- The layers of heart muscle:
 - 1- **Endocardium**: the innermost layer.
 - 2- **Myocardium**: The middle layer, which is the actual heart muscle and the thickest of the three layers.
 - 3- **Epicardium**: The outer layer of the heart.
- The **pericardium**, a sac that surrounds the heart.



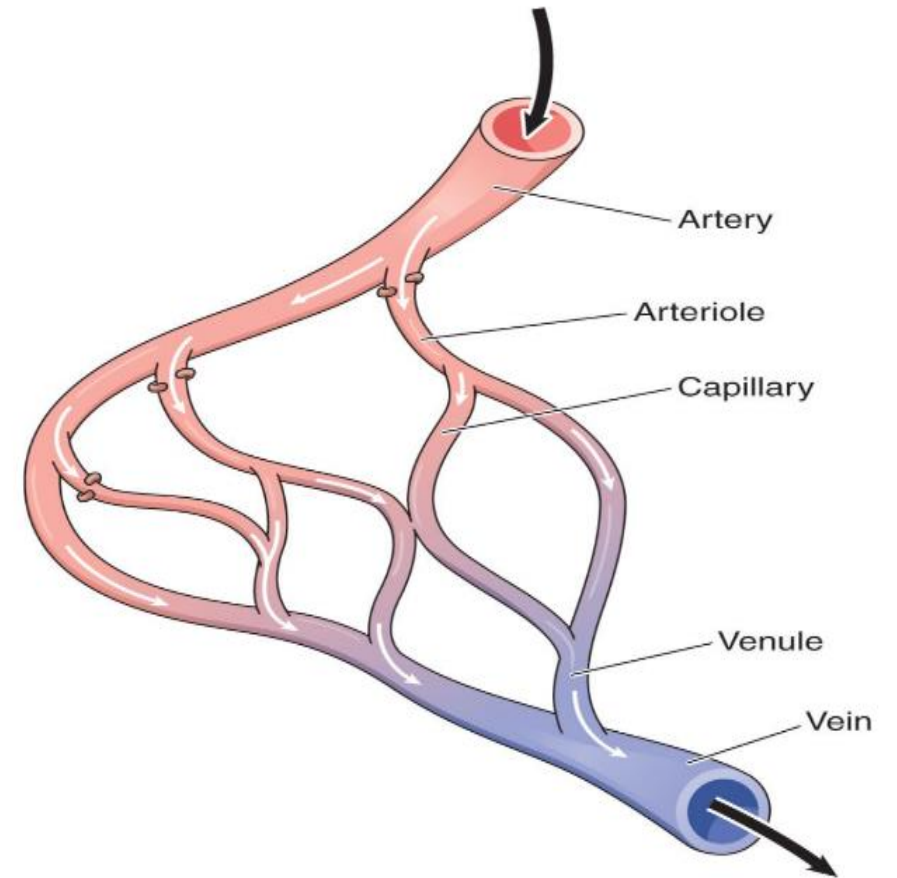
The conducting system of the heart

- **The conducting system of the heart consist of:**
 - Sinoatrial node (**SA node**)
 - Atrioventricular node (**AV node**)
 - Atrioventricular bundle (**AV bundle or bundle of His**)
 - Right and left bundle branche(**Purkinje fibers**)
- **Heart rate (HR)** is the number of times the heart beats per minute.



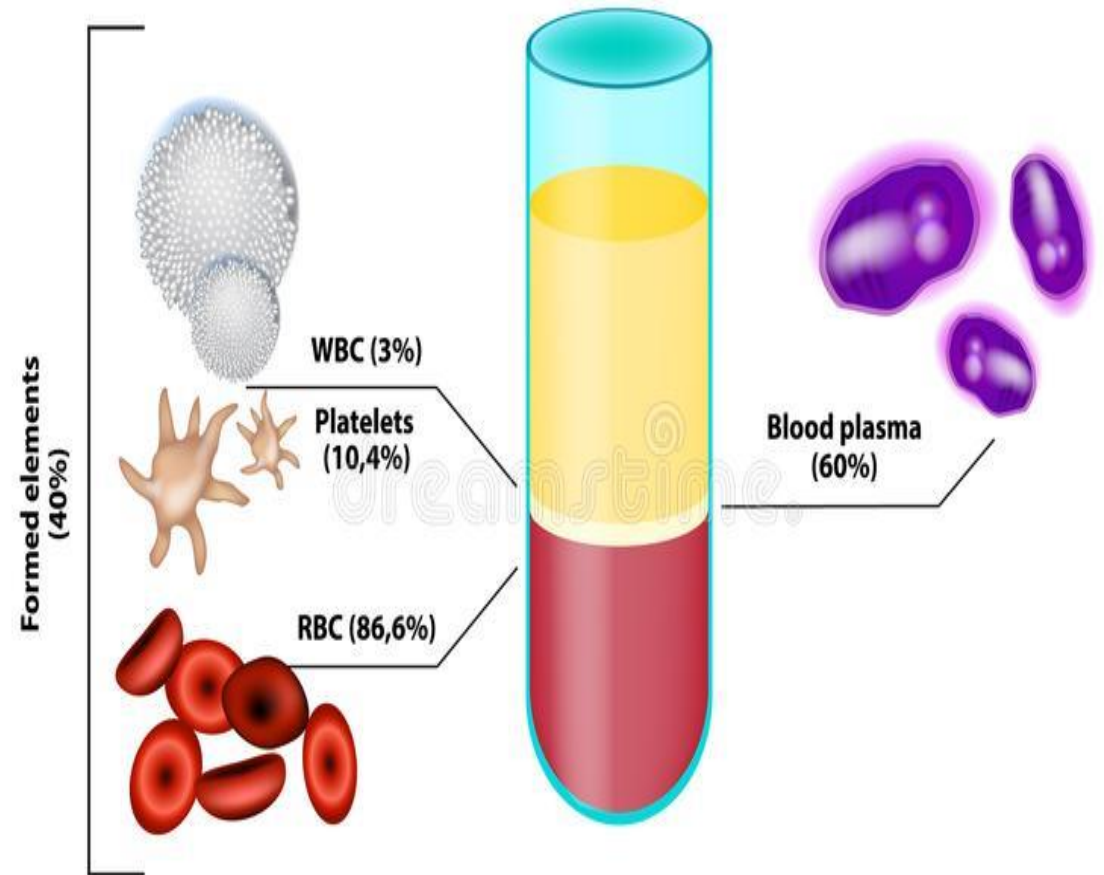
Blood Vessels

- **Blood vessels** are tubular structures that convey blood.
- The types of blood vessels include **arteries, arterioles, capillaries, venules, & veins**.
- [Vasodilation](#): mean dilation of blood vessels
- [Vasoconstriction](#): mean constriction of blood vessels



Blood

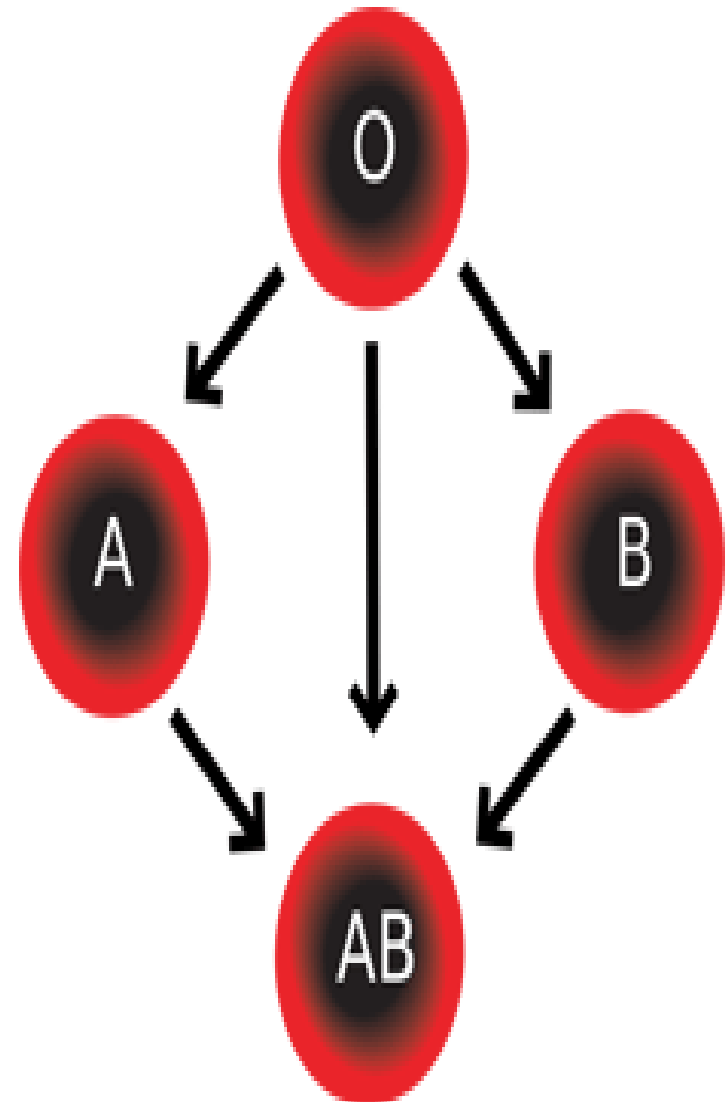
- **Blood** is a fluid connective tissue made up of **plasma** (55%) and **formed elements** (45%).
- **The formed elements in blood consist of:**
 - 1- **Red blood cells (RBCs)**, also called **erythrocytes**
 - 2- **White blood cells (WBCs)**, also called **leukocytes**
 - 3- **platelets**, also called **thrombocytes**



Blood Groups

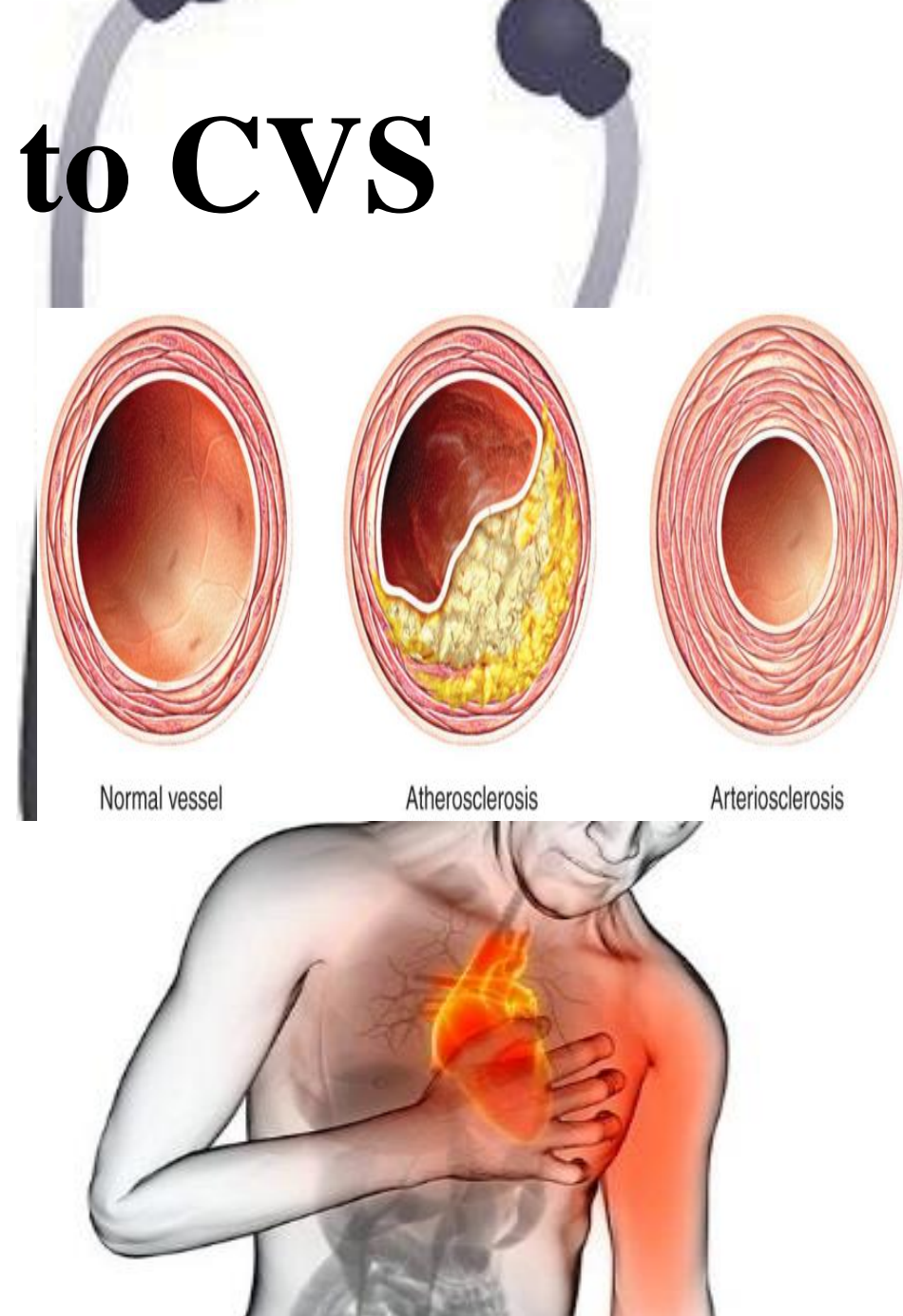
The four major blood groups (types):
A, B, AB, and O.

Blood Type	Can Donate to	Can Receive from
A	A or AB only	A or O only
B	B or AB only	B or O only
AB (universal recipient)	AB only	A, B, AB, O
O (universal donor)	A, B, AB, O	O only



Disorders related to CVS

- **Coronary artery disease:** is narrowing of the lumen of one or more of the coronary arteries, usually due to atherosclerosis.
- **Atherosclerosis:** hardening and narrowing of the arteries caused by fatty deposits on inner arterial walls.
- **Arteriosclerosis:** is a hardening and loss of elasticity in the artery.
- **Ischemia:** An inadequate supply of blood and oxygen to tissues.
- **Angina pectoris:** pain in the chest due to ischemia



- **Angiospasm** : spasm in blood vessels
- **Angiostenosis**: narrowing of a blood vessel
- **Arteriospasm** : spasm of an artery

- **Thrombus** is a blood clot in a blood vessel, which can impede blood flow to the myocardium and cause ischemia.
- **Thrombosis** is the formation of a thrombus.
- **Embolus** is a blood clot that moves throughout the bloodstream.

- **Sinus rhythm**: normal heart rhythm
- **Arrhythmia**: is any irregularity of the heart's rhythm, such as a slow or fast rate or extra beats (abnormal heart rhythm).
- **Bradycardia** (less than 50 beats/minute) is a slower than normal HR,
- **Tachycardia** (more than 90 beats/minute) is a faster than normal rate.
- **Fibrillation** : rapid, random, and ineffective contractions of the heart

- **Atriomegaly** : enlargement of an atrium
- **Cardiac arrest**: cessation of heart activity
- **Cardiomegaly** : enlargement of the heart
- **Cardiomyopathy** : disease of the heart muscle (myocardium)
- **Cardiopathy** : any heart disease
- **Cardiorrhexis** : rupture in the heart wall

Endocarditis : inflammation of the endocardium

Myocarditis : inflammation of the heart muscle

Pericarditis : inflammation of the pericardium

Valvulitis : inflammation of a heart valve

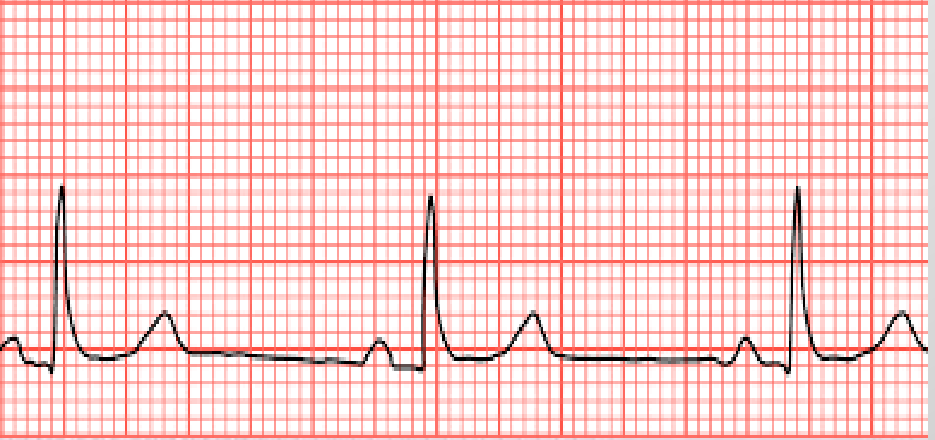
Vasculitis : inflammation of a vessel

- **Myocardial infarction** (MI): commonly called a heart attack, results from a lack of oxygen supply to the myocardium
- **Congestive heart failure** (CHF) occurs when the heart cannot pump enough blood to meet the body's needs for oxygen and nutrients.
- **Hypertension**: high blood pressure
- **Hypotension** : low blood pressure

Normal Sinus Rhythm



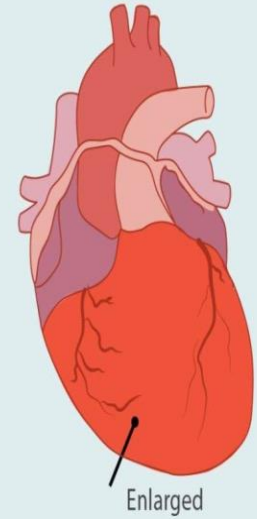
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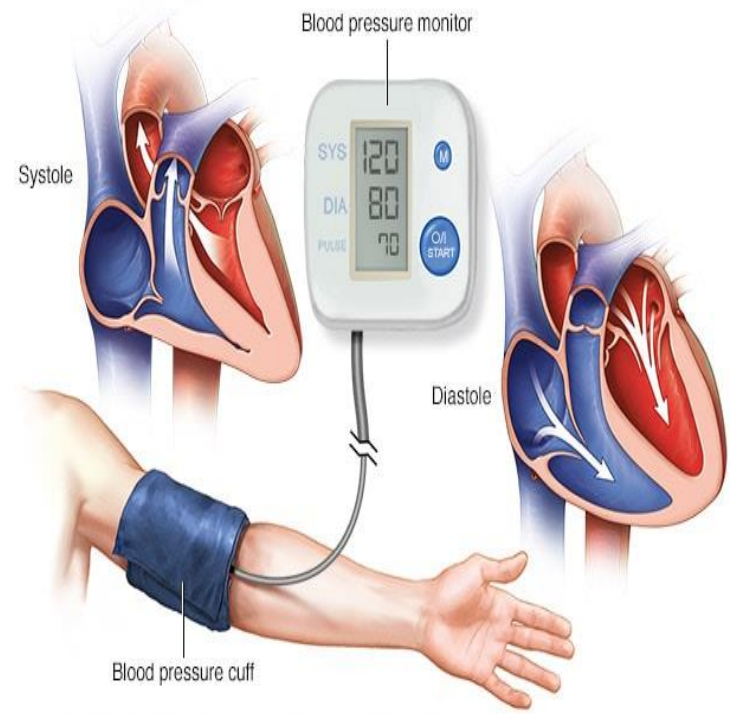
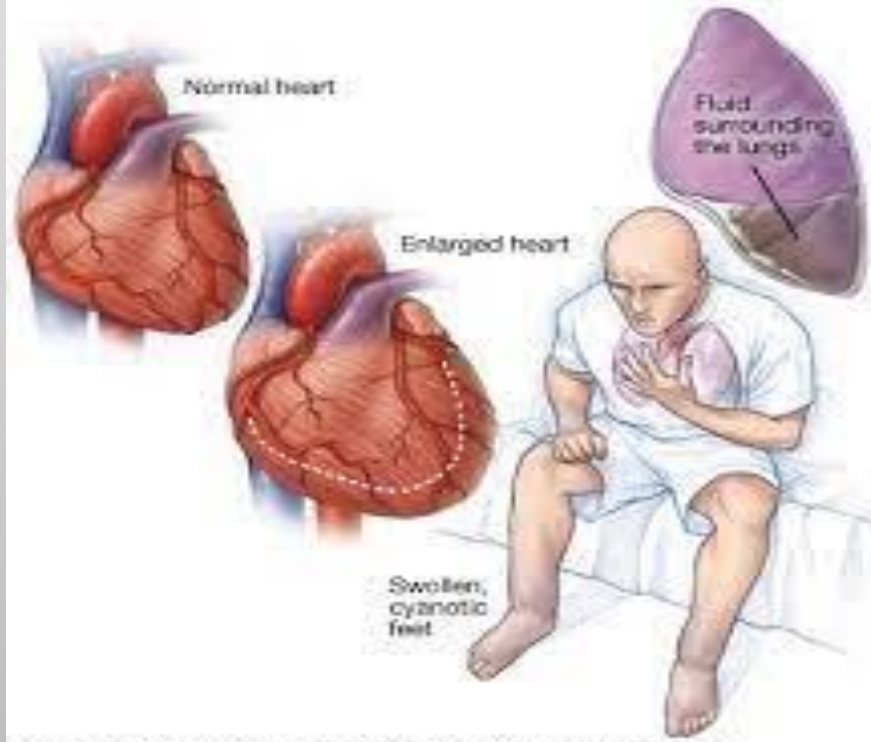
Courtesy of James H. Rodolph, OCT, CRAT



Enlarged Heart



healthline

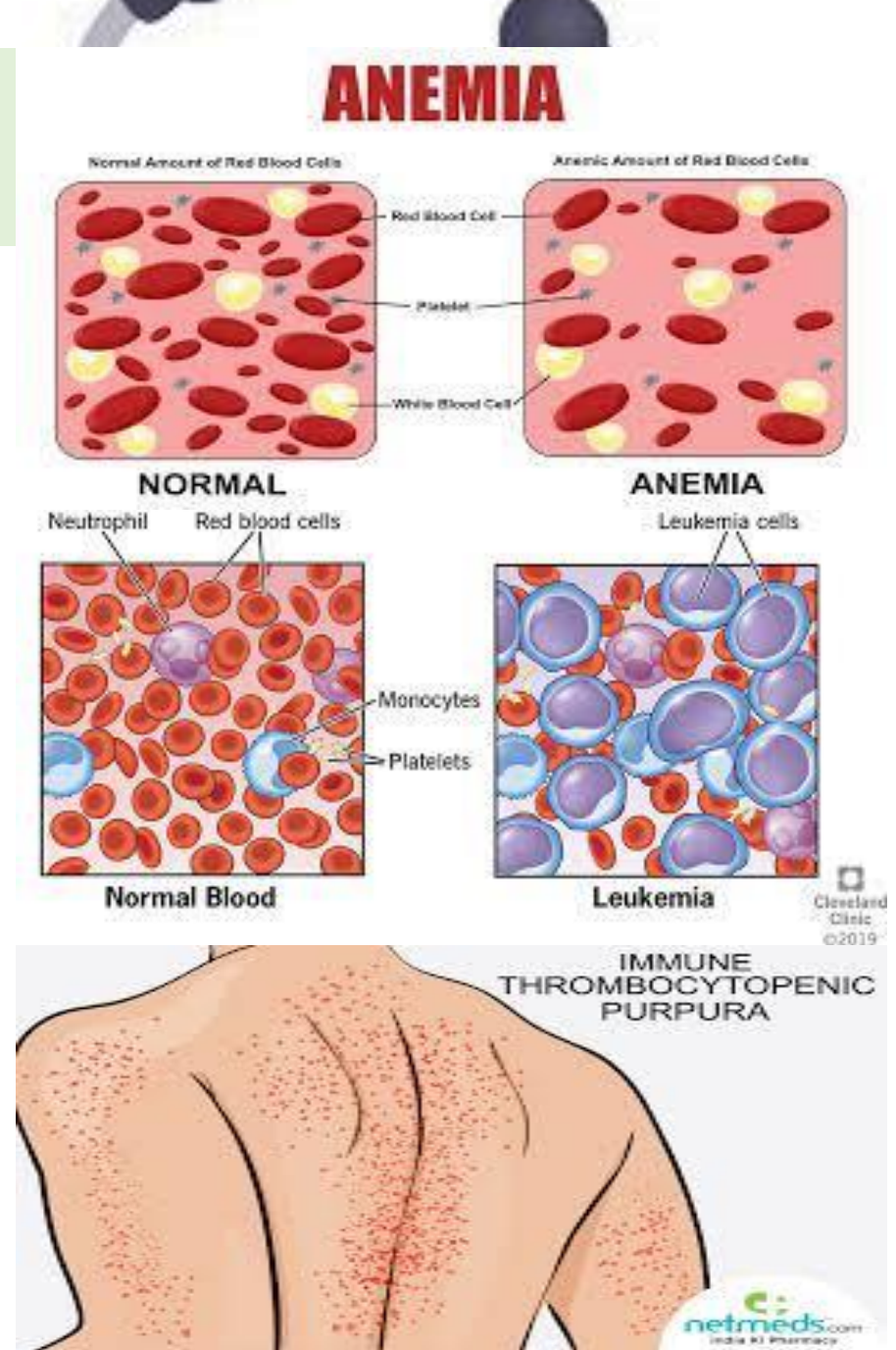


Blood Disorders

Dyscrasia: any abnormality of the blood.

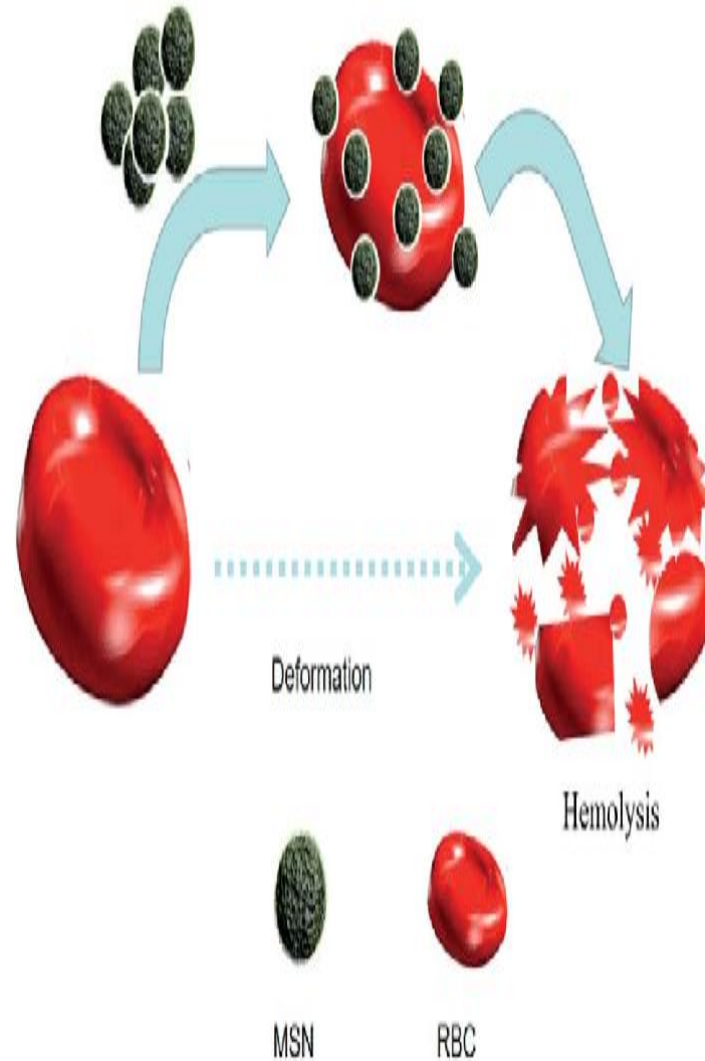
There are three major types: **anemia**, **leukemia**, and **clotting disorders**:

- **Anemia** is a condition marked by a deficiency of RBCs or a low level of Hb.
- **Leukemia** is characterized by an increased number of WBCs.
- **Clotting disorders** include:
 - **Hemophilia** (hereditary bleeding disorder),
 - **Thrombocytopenia** (an insufficient number of thrombocytes), and
 - **Disseminated intravascular coagulation** (DIC) (extreme clotting caused by trauma or disease).



Blood Disorders

- **Hemolysis** : change or destruction of RBCs
- **Hemorrhage** : discharge of blood; bleeding



Diagnostic Tests, Treatments, & Surgical Procedure

- **Angiogram** :printed record obtained through angiography
- **Angioplasty** : surgical repair of a blood vessel
- **Valvoplasty**: surgical repair of a heart valve
- **Antianginals**: drugs used to treat chest pain
- **Antiarrhythmics**: drug used to treat rhythm abnormalities
- **Arterial stent** : a device implanted into an artery to open and provide support to the arterial wall
- **Cardioversion**: use of electrical shock to restore the heart's normal rhythm.
- **Echocardiography**: ultrasonic procedure used to evaluate the structure and motion of the heart



NITROGLYCERIN

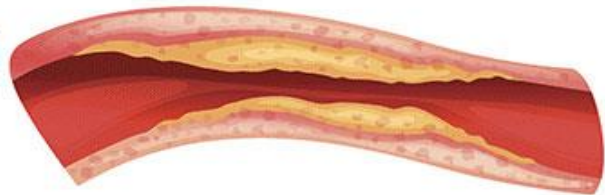


Sublingual tablets



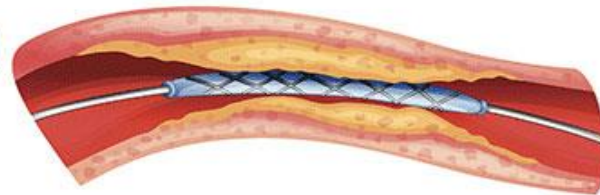
Stent with Balloon Angioplasty

1



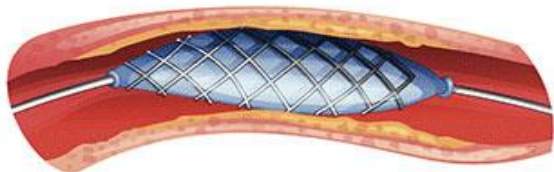
Build up of cholesterol partially blocking blood flow through the artery.

2



Stent with balloon inserted into partially blocked artery.

3



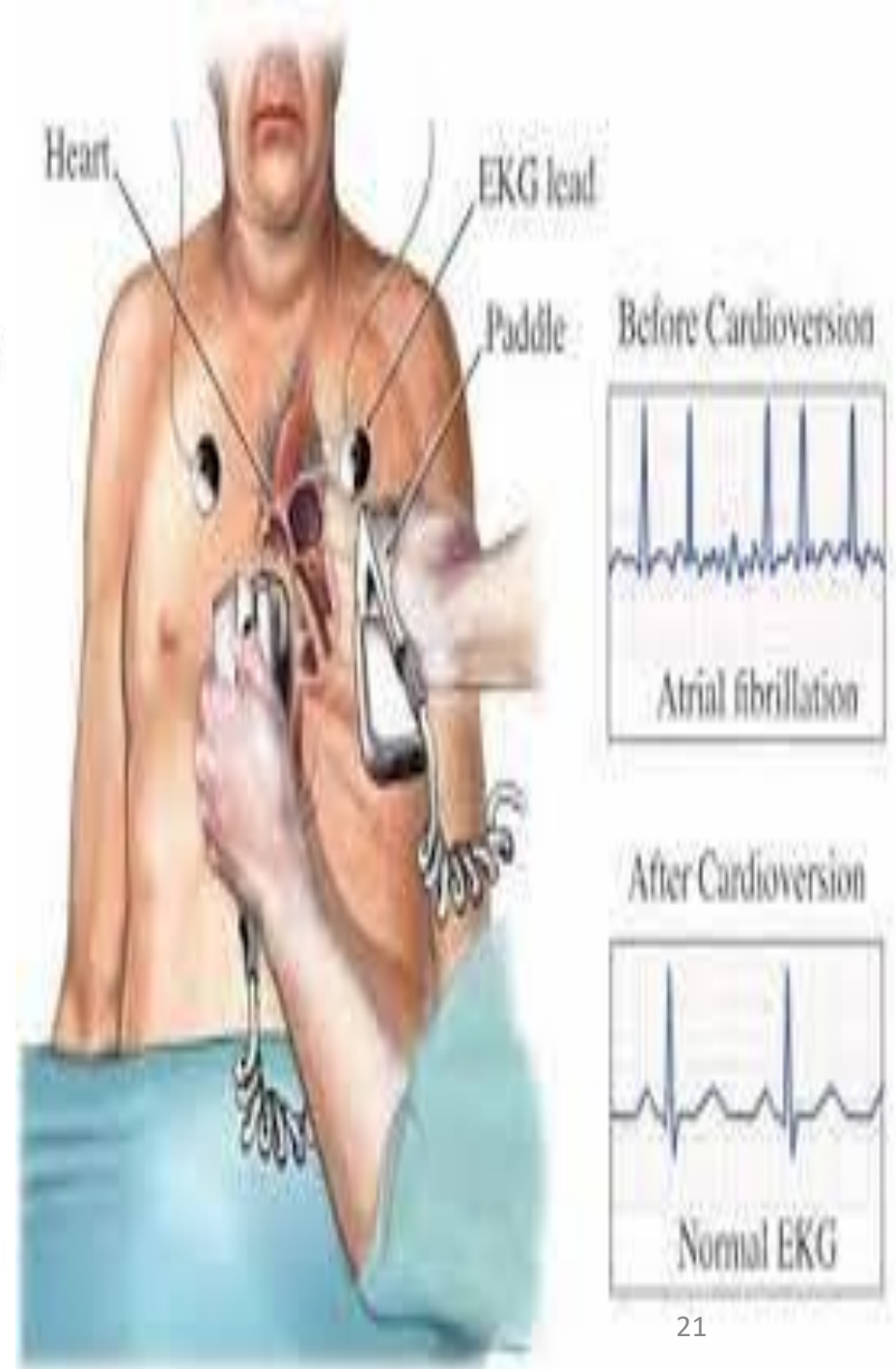
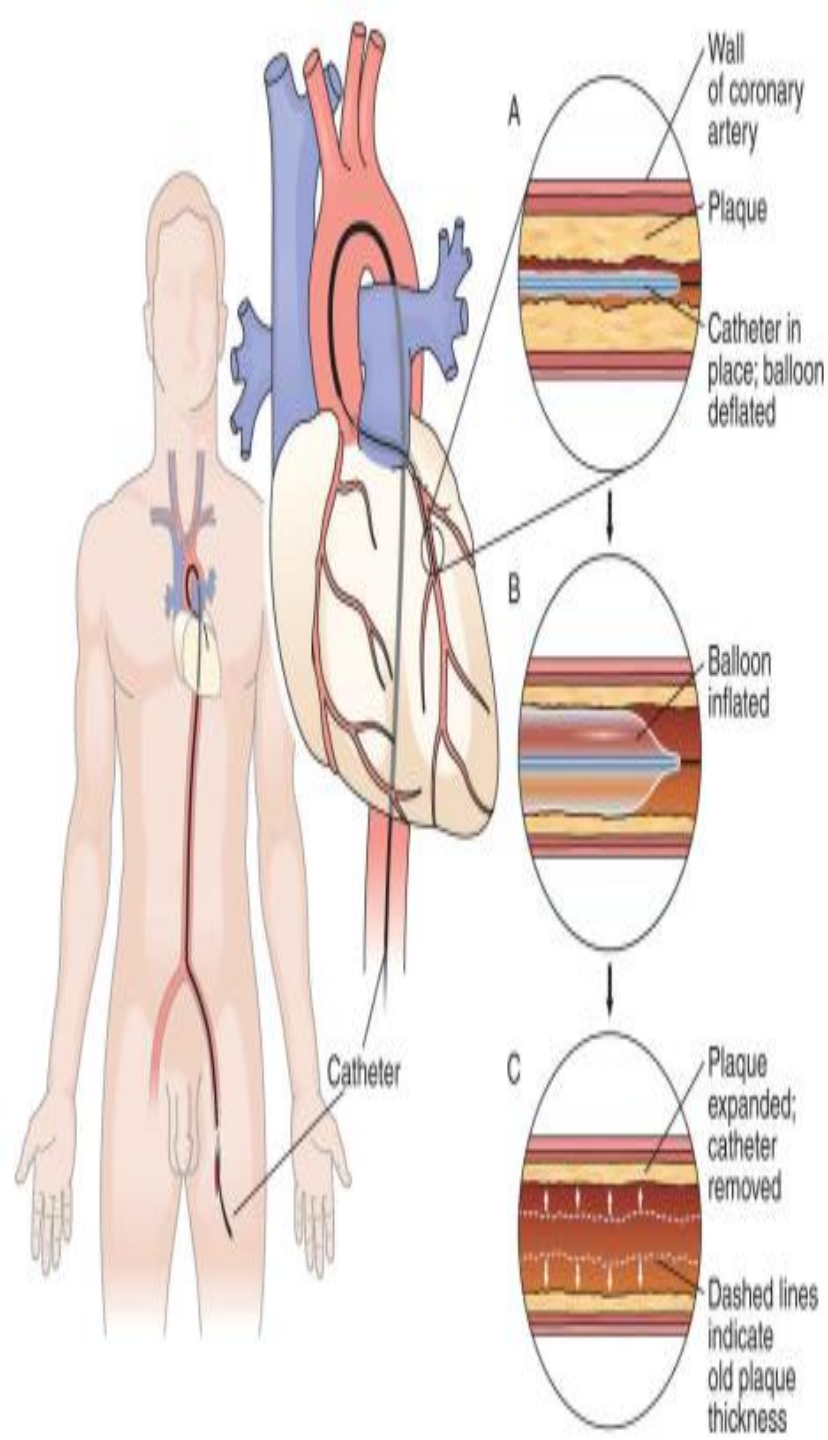
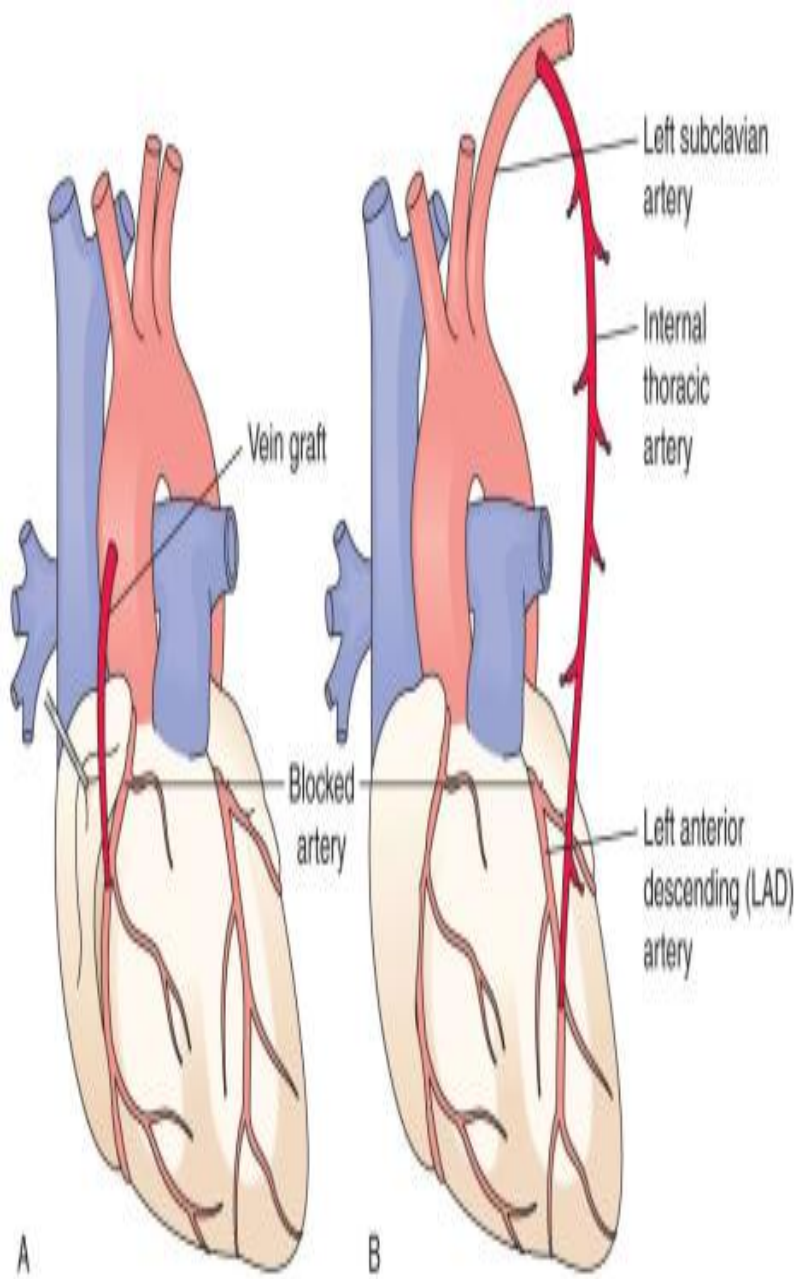
Balloon inflated to expand stent.

4



Balloon removed from expanded stent.





Practice and Practitioners

Cardiologist: mean heart specialist

Cardiology: mean medical specialty dealing with the heart

Cardiovascular surgeon: a medical practitioner who surgically corrects disorders of the cardiovascular system

Hematologist: mean blood specialist

Hematology : mean medical specialty dealing with blood



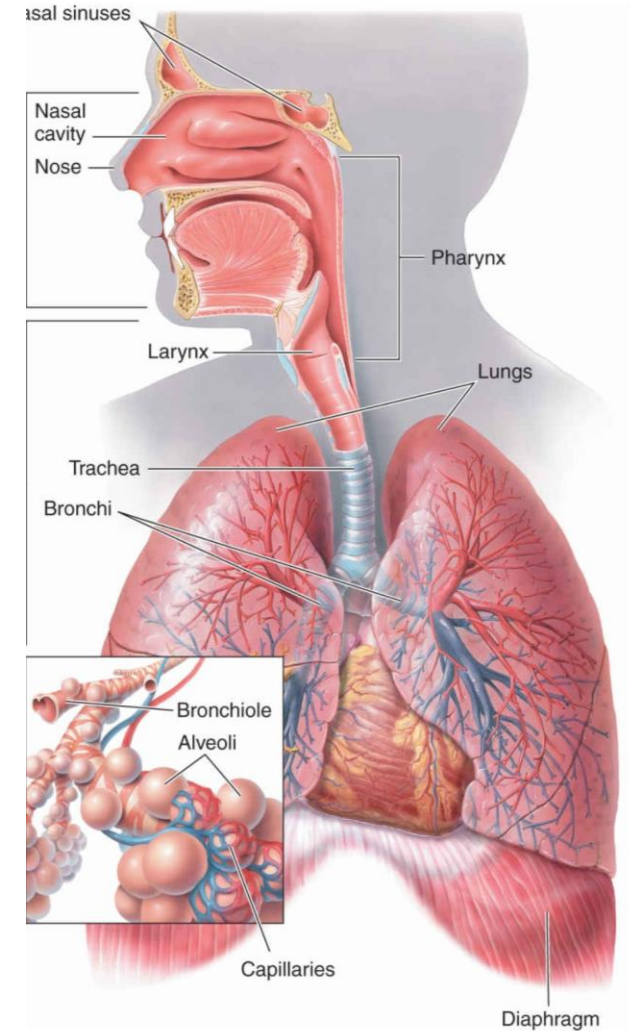
Thank
You!



Medical Terminology

Lec 6: Respiratory System

**Assist. Lecturer:
Safa Hameed Mohsin**



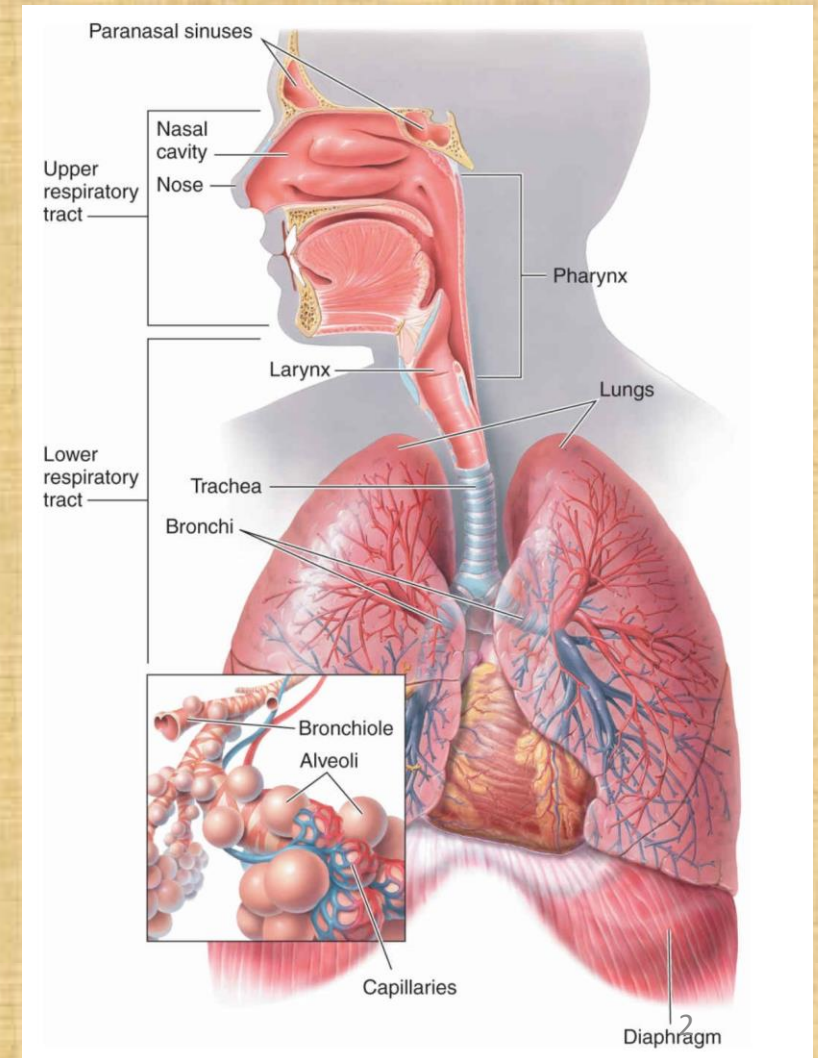
INTRODUCTION

The respiratory system is all the air passages from the **nose** to the **pulmonary alveoli** in the lungs.

It is divided into:

an **upper respiratory tract** & a **lower respiratory tract**.

- The upper respiratory tract is made up of the **paranasal sinuses, nasal cavity, nose, and pharynx.**
- The lower respiratory tract is made up of the **larynx, lungs, trachea, bronchi, bronchioles, and alveoli.**



Function of the respiratory system

- The respiratory system allows us to **inhale** oxygen (O₂) and **exhale** carbon dioxide (CO₂).

Respiration divided into:

- **External respiration** is the process in which air is brought into the lungs, and oxygen and carbon dioxide are exchanged in the bloodstream at the capillaries surrounding the alveoli.
- **Internal respiration** is the process where oxygen and carbon dioxide move between the bloodstream and the body's cells.

Word parts related to the respiratory system

- The word part **spir/o** (which is a root) and the suffix **-pnea** are both used to describe **breathing**.
- **Pulmon/o** means **lung**, and is the root of the word **pulmonary** (an adjective used to describe the lungs).
- **nas/o** means **nose** and provides the root for **nasal** (an adjective used to describe the nose). Another root meaning nose is **rhin/o**.
- **Nasal** comes from the Latin word for nose, while **rhin/o** comes from the Greek word for nose.
- **Pneum/o** comes from the Greek word **pneumon** (lung) and can refer to the lungs or air. **Pneum/o** is the root for the well known infection **pneumonia**.

Word Part	Meaning
adeno-	glandlike
spir/o	breathing
bronch/o, bronchi/o	bronchus
laryng/o	larynx
lob/o	lobe
nas/o	nose

or/o	mouth, opening
-oxia	oxygen
pharyng/o	pharynx
-phonia	voice
phren/o	diaphragm
pleur/o	rib, side, pleura
-pnea	breathing
pneumo-, pneumon/o	lungs, air
pulmon/o	lung
rhin/o	nose
sinus/o	sinus cavity
spir/o	breathing
thorac/o, thorac/i, thoracic/o	thorax, chest
tonsill/o	tonsil
trache/o	trachea

Disorders related to respiratory system

Hemoptysis: spitting or coughing up blood

Tachypnea: rapid breathing rate (it is normal to have **tachypnea** during exercise)

Bradypnea: abnormally slow breathing rate

Apnea: cessation (stop) of breathing

Dyspnea: difficult or labored breathing

Orthopnea: discomfort or difficulty in breathing while lying flat; difficulty is relieved by sitting up

Kussmaul breathing: rapid, deep breathing; characteristic of diabetic acidosis or other causes of acidosis

Rhinitis: inflammation of the nasal mucous membrane

Dysphonia: altered voice production, which is usually painful or difficult (seen commonly in **laryngitis**).

- **Influenza (flu):** acute infectious respiratory disease caused by influenza viruses
- **Pneumonia:** inflammation of the lung parenchyma (lung tissue of bronchioles, bronchi, blood vessels, and alveoli); may be caused by infection of a bacteria or a virus
- **Laryngitis:** inflammation of the larynx mucous membrane
- **Pertussis(whooping cough):** acute inflammation of the larynx, trachea, and bronchi caused by Bordetella pertussis
- **Tuberculosis(TB):** infection caused by Mycobacterium tuberculosis; symptoms include fatigue, anorexia, weight loss, fever, chronic cough, and hemoptysis
- **Asthma:** lung disease characterized by reversible inflammation and constriction
- **Chronic obstructive pulmonary disease (COPD):** an umbrella term that includes both **emphysema** and **chronic bronchitis**

- **Emphysema**: condition in which the alveoli are enlarged and inefficient, leading to shortness of breath (SOB)
- **Chronic bronchitis**: inflammation of the mucous membrane of the bronchi
- **Atelectasis**: collapse of a lung or part of a lung, leading to decreased gas exchange
- **Bronchiectasis** : chronic dilation of the bronchi
- **Bronchiostenosis**: narrowing of the bronchial tubes
- **Bronchoconstriction** :the bronchi become narrowed or constricted
- **Bronchodilation**: the bronchi become more open or dilated
- **Dysphonia**: difficult or painful speech

- **Rhinopathy** : any disease of the nose
Rhinorrhea: discharge from the nose
- **Tracheitis** : inflammation of the trachea
Tracheostenosis: narrowing of the trachea
- **Laryngospasm**: involuntary contraction of the larynx
- **Laryngostenosis**: a narrowing of the larynx
- **Phrenoplegia**: paralysis of the diaphragm
- **Pneumonitis** : inflammation of a lung caused by infection, chemical inhalation, or trauma
- **Sinusitis**: inflammation of any sinus mucous membrane
- **Epiglottitis**: inflammation of the epiglottis, which may cause respiratory obstruction

Diagnostic Tests, Treatments & Surgical Procedures

- **Antihistamine** : drug used to treat acute allergic reactions
Antipyretic : drug used to reduce fever
- **Bronchodilator** : drug used to expand the bronchi
Bronchoplasty : surgical repair of a bronchus
- **Bronchoscope**: a device for visually inspecting the interior of a bronchus
- **Bronchoscopy**: inspection of the bronchial tree using a bronchoscope
- **laryngectomy** : excision of the larynx
- **pharyngotomy** : surgical incision into the pharynx

Diagnostic Tests, Treatments & Surgical Procedures

- **Pneumonectomy** : removal of pulmonary lobes from a lung
- **Pneumonorrhaphy** : suturing of a lung
- **Pulmonary function test**: measurement of lung volumes to assess breathing and ventilation; instrument used is a spirometer
- **Pulse oximeter**: a device that measures O₂ saturation of arterial blood
- **Spirometers**: device used to measure respiratory gases.
- **Thoracentesis** : insertion of a needle into the pleural cavity to withdraw fluid for diagnostic purposes, to drain excess fluid, or to re-expand a collapsed lung

Practice and Practitioners

Pulmonologist: physician who specializes in diagnosing and treating respiratory disorders

Pulmonology : medical specialty of diagnosing and treating respiratory disorders

Both otolaryngologists & otorhinolaryngologists diagnose and treat disorders of the **ears, nose & throat (ENT)**





THANK YOU
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ATTENTION**



Medical terminology

Urinary System

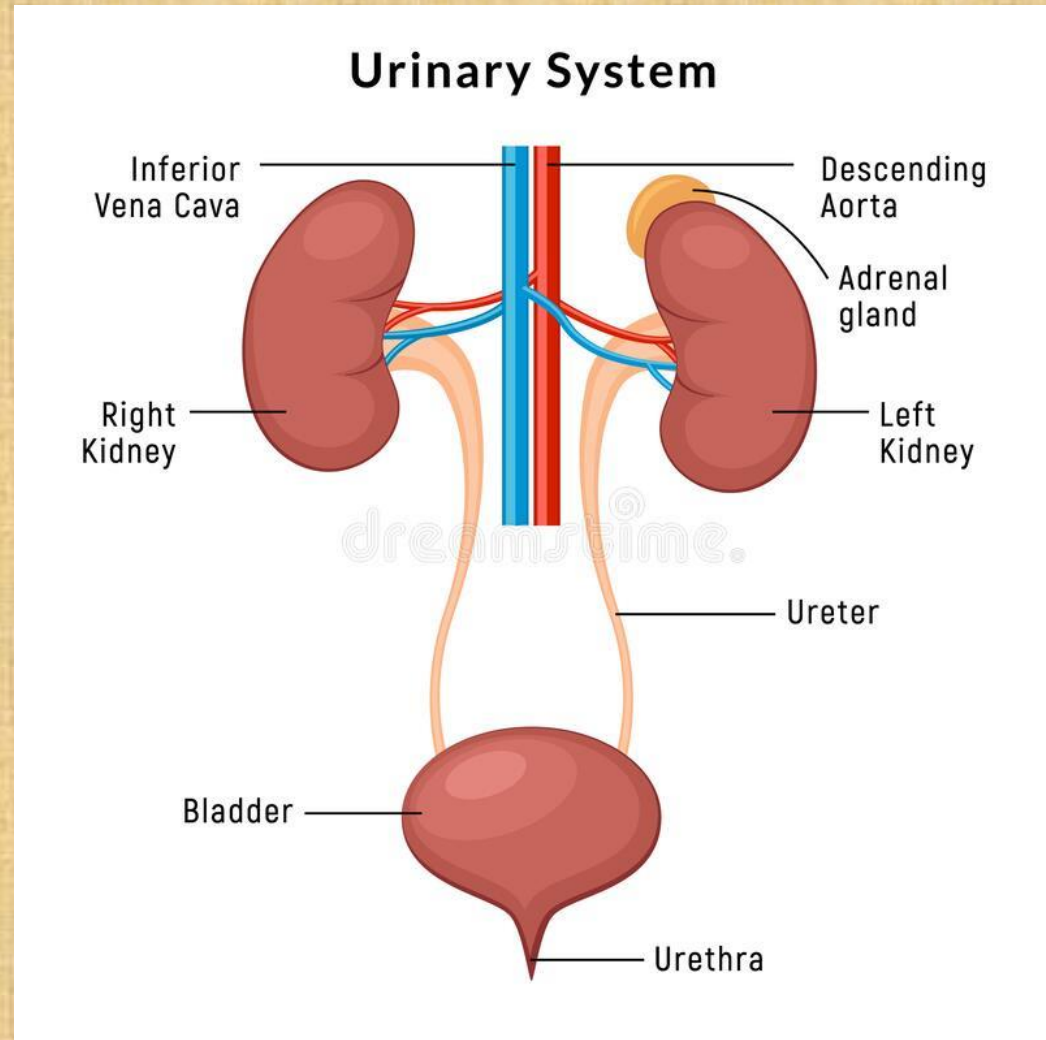
Assist.Lec. Safa Hameed

Tikrit university- College of pharmacy

Anatomy and Physiology

- The urinary system consists of:

- 1- **Two kidneys**
- 2- **Two ureters**
- 3- **The urinary bladder**
- 4- **The urethra**



- **The primary function of the urinary system** is regulation of the extracellular fluids of the body (primarily plasma and tissue fluid).
- **The kidneys** remove waste products from plasma as they form urine.
- **Urine**, containing waste products, passes from the kidneys via the ureters to the urinary bladder for temporary storage before it is excreted from the body through the urethra.

Word parts related to urinary system

- Nephro and ren/o are both root words that mean **kidney**.
- The term cyst and the word part cyst/o mean **bladder**, whereas the word parts ur/o and urin/o mean **urine**.

Word Part	Meaning
cyst/o	bladder
glomerul/o	glomerulus
-iasis	condition, state

Word parts related to urinary system

lith/o	stone
nephr/o, ren/o	kidney
noct/o	night
olig/o	few, little
poly-	much, many
py/o	pus
pyel/o	pelvis
ur/o, urin/o	urine
ureter/o	ureter
urethr/o	urethra

Disorders related to urinary system

Disorders of the urinary system can affect any urinary structures.

Some of these disorders are listed as follows:

- **Dysuria**: painful, difficult urination
- **Incontinence**: the loss of urinary control
- **Retention**: the inability to empty the bladder



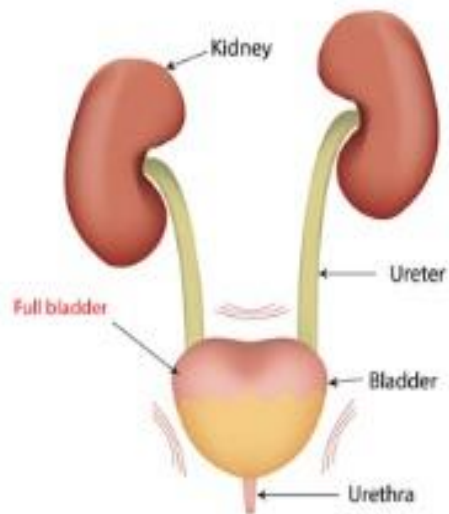
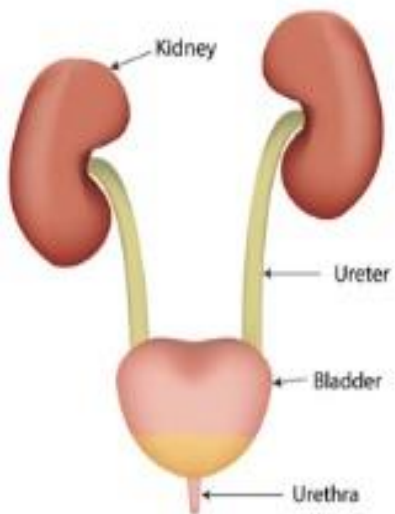
Urinary Retention



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Healthy Bladder

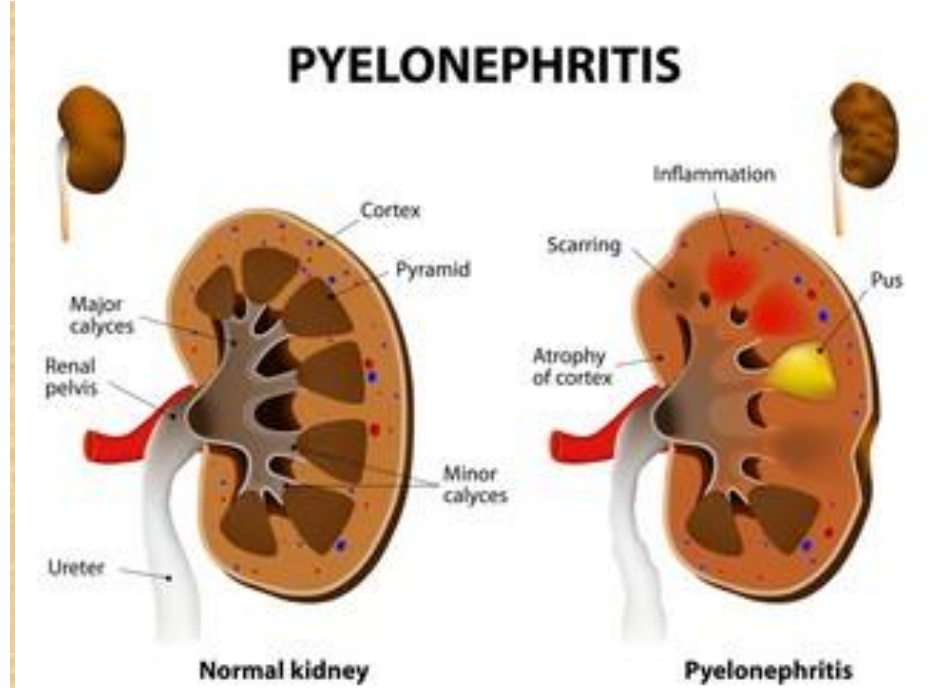
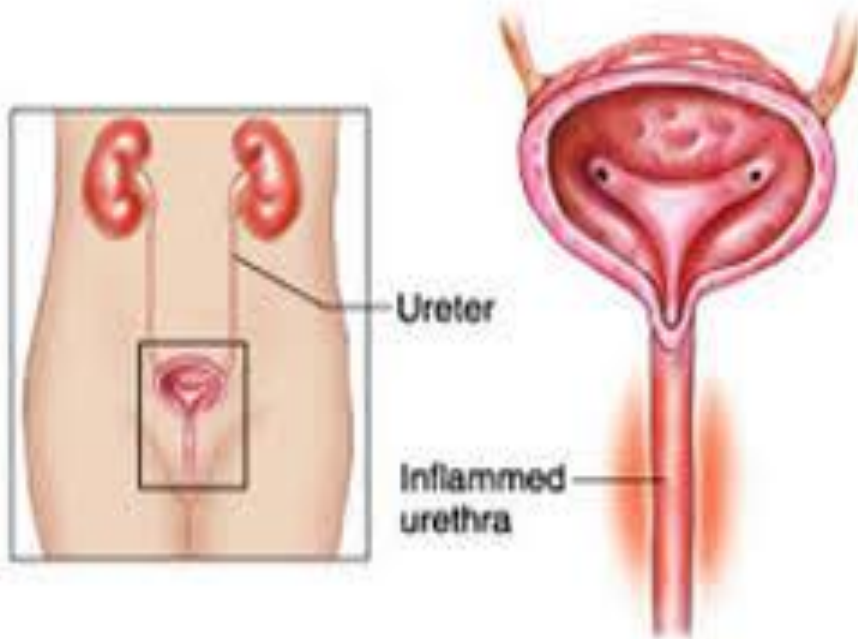
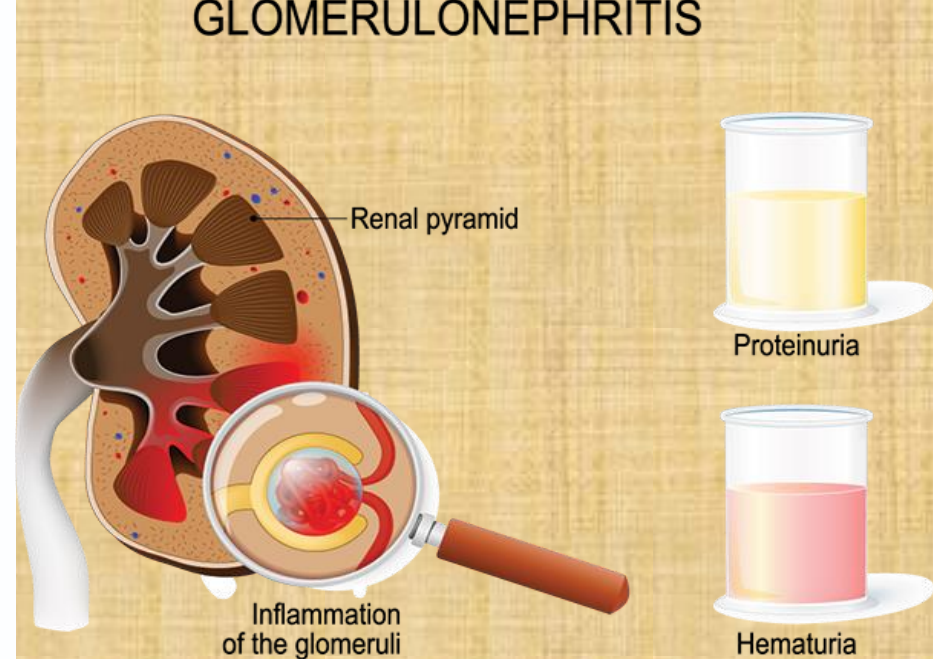
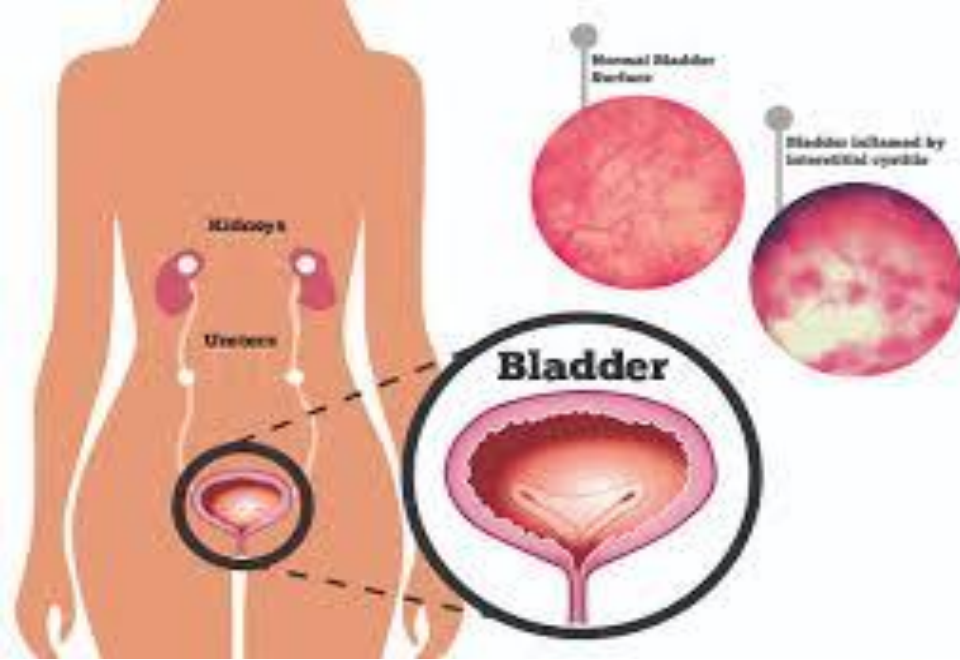
Bladder in Retention



- **Urinary tract infections (UTIs):** infection of the urinary tract.

Examples of UTIs include the following:

- **Cystitis:** inflammation of the **urinary bladder**, usually caused by **infection**
- **Glomerulonephritis:** inflammation of the **glomerulus**, which can involve one or both kidneys, usually caused by **infection**
- **Nephritis:** inflammation of the **kidney(s)**, usually caused by **infection**
- **Pyelonephritis:** inflammation of the **calyces and renal pelvis** , typically due to bacterial **infection**
- **Urethritis:** inflammation of the **urethra**, usually caused by **infection**



- **Renal failure** or *end-stage renal disease* (ESRD) is loss of renal function that results in kidneys ceasing urine production.

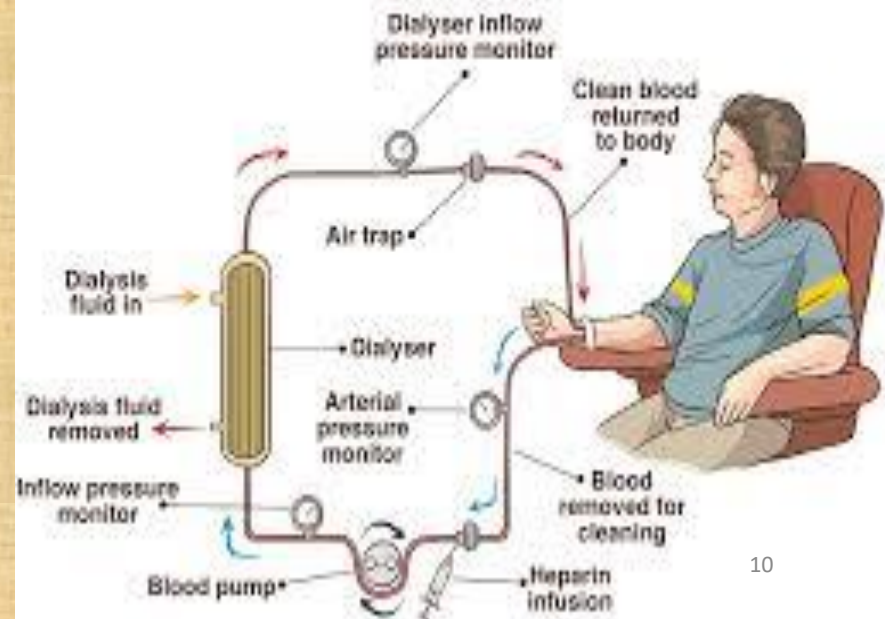
- **Albuminuria**: presence of the protein, albumin, in the urine, typically a sign of kidney disease

- **Anuria**: failure of the kidneys to produce urine

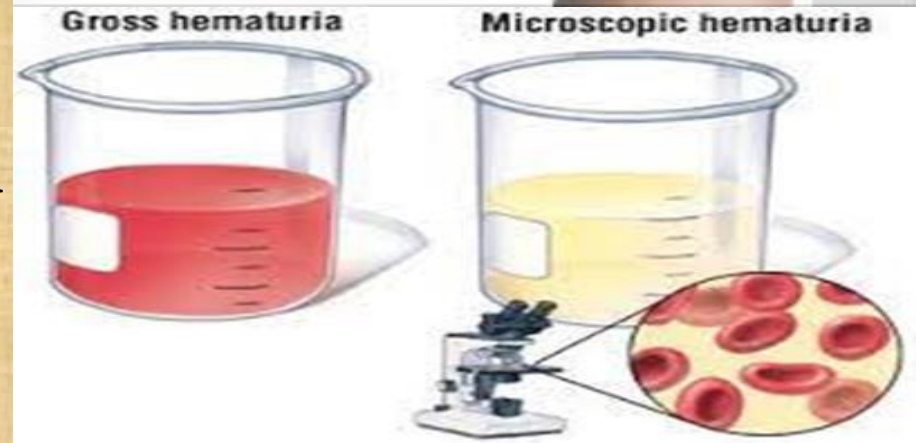
- **Cystalgia**; pain in the urinary bladder



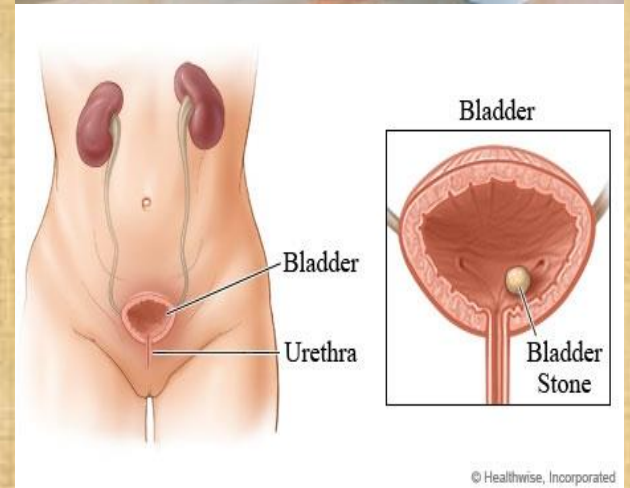
Haemodialysis



- **Cystocele**: hernia of the urinary bladder
- **Glycosuria**: Presence of carbohydrates (sugar) in the urine
- **Hematuria**: presence of blood in the urine
- **Nephrolithiasis**: the presence of renal calculi
- **Nocturia**; excessive urination at night

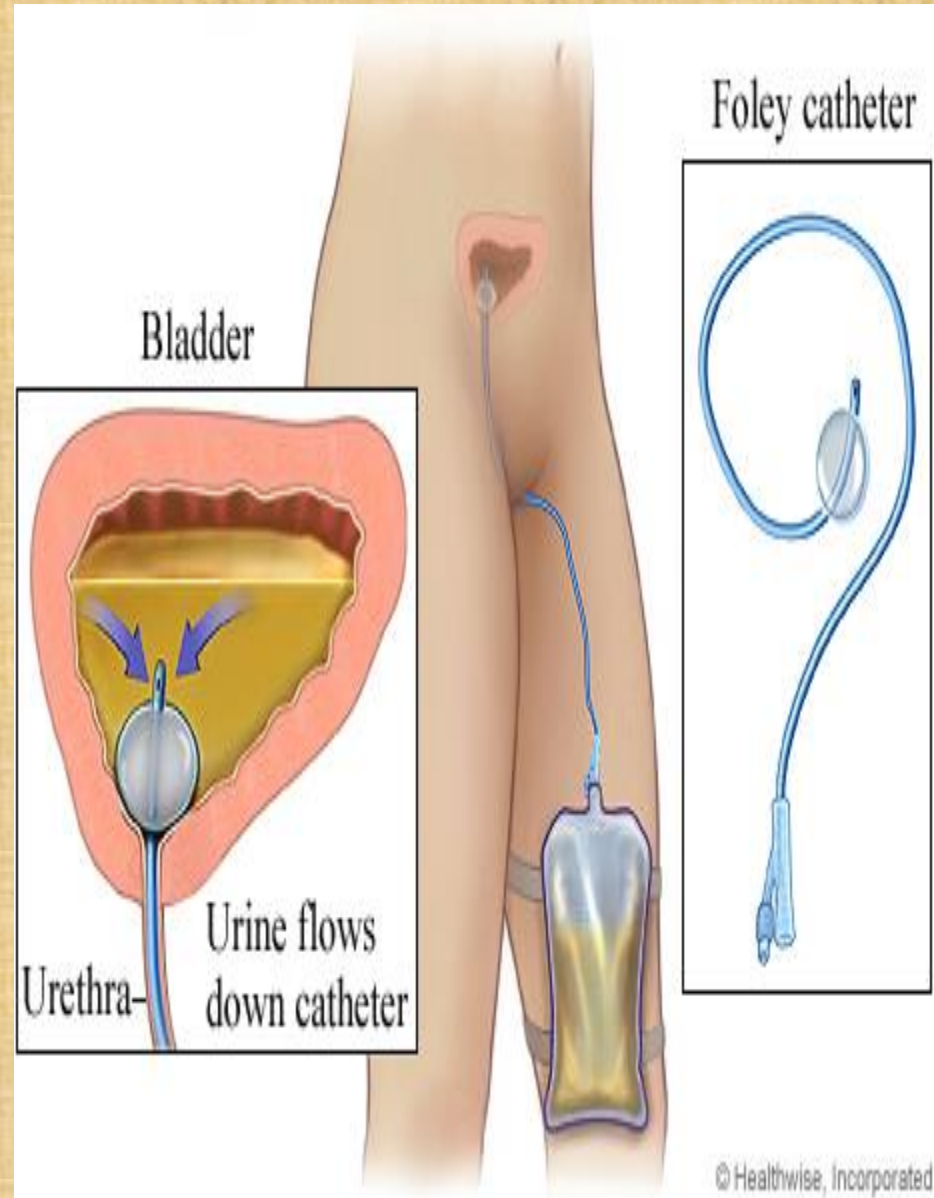


- **Oliguria:** diminished urine production
- **Polyuria:** excessive urine production
- **Uremia:** an excess of urea in the blood
- **Urethrostenosis:** narrowing of the urethra
- **Cystolith:** urinary bladder stone
- **Nephralgia:** pain in the kidneys



DIAGNOSTIC TESTS, TREATMENTS, AND SURGICAL PROCEDURES

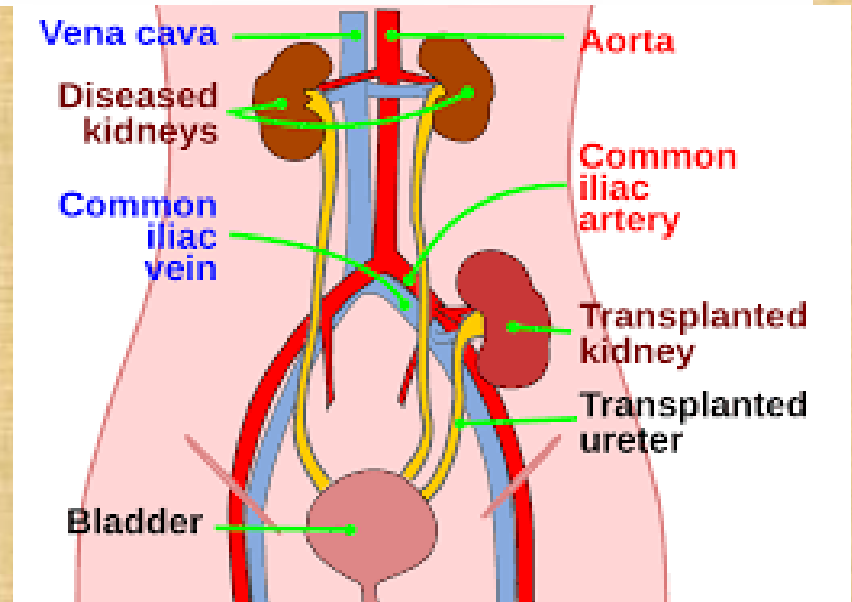
- **Catheter** a flexible **tube** that enables passage of fluid from or into a body cavity
- **Cystopexy**: surgical attachment (**fixation**) of the urinary bladder to the abdominal wall or other supporting structures
- **Dialysis** is a filtration to remove colloidal particles from a fluid; a method of artificial kidney function



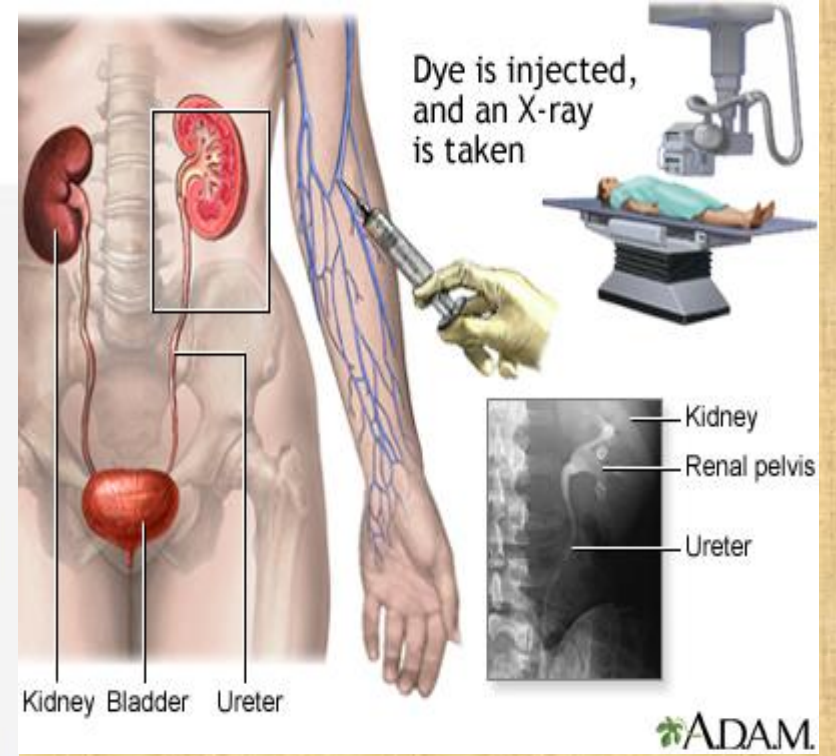
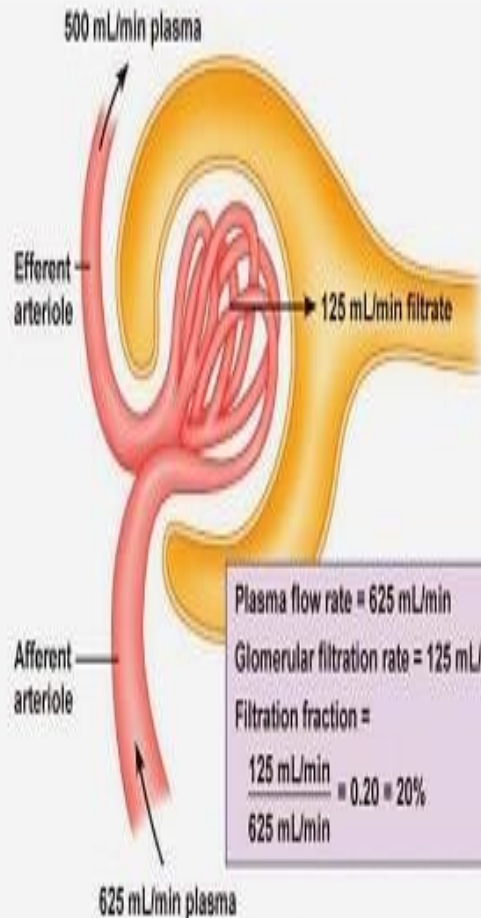
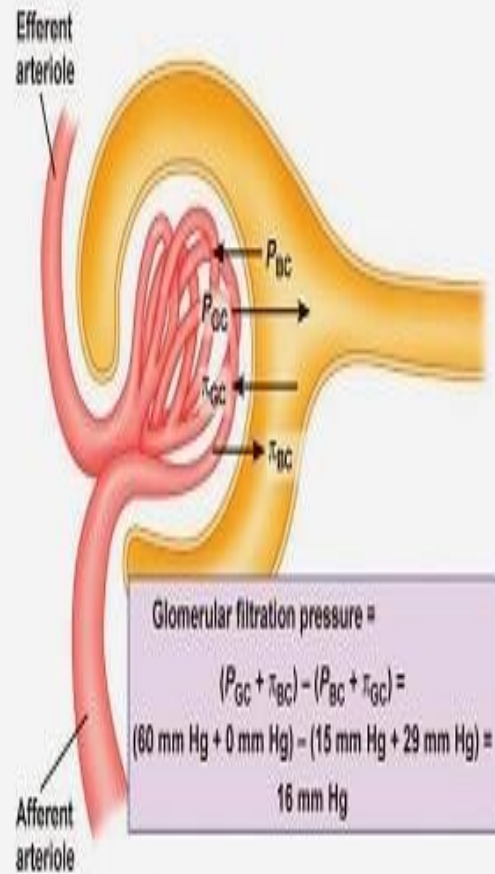
- **Diuretic** drug that promotes urination

- **Hemodialysis:** removal of unwanted substances from the blood by passage through a semipermeable membrane; kidney dialysis

- **Kidney transplant:** is an operation in which a donor kidney is placed into a recipient



- **glomerular filtration rate (GFR)** : A test of kidney function, This test determines the volume of water filtered out of the blood plasma through the capillary walls into the glomerular capsule per unit of time.
- An X-ray or computed tomography (CT) scan of the kidneys, ureters, and bladder (KUB) after intravenous injection of a contrast dye is known as an **intravenous pyelogram (IVP)**.
- **Blood urea nitrogen (BUN)** is a blood test that measures kidney function by assessing the level of nitrogenous waste and urea that are in the blood.



PRACTICE AND PRACTITIONERS

- **Urologist:** A physician who specializes in the diagnosis and treatment of urinary disorders and the specialty practice is **urology**.
- **Nephrologist** :A physician who treats the kidney and kidney disorders .This area of specialty is named **nephrology**.



THANK
YOU



CNS – Central Nervous System

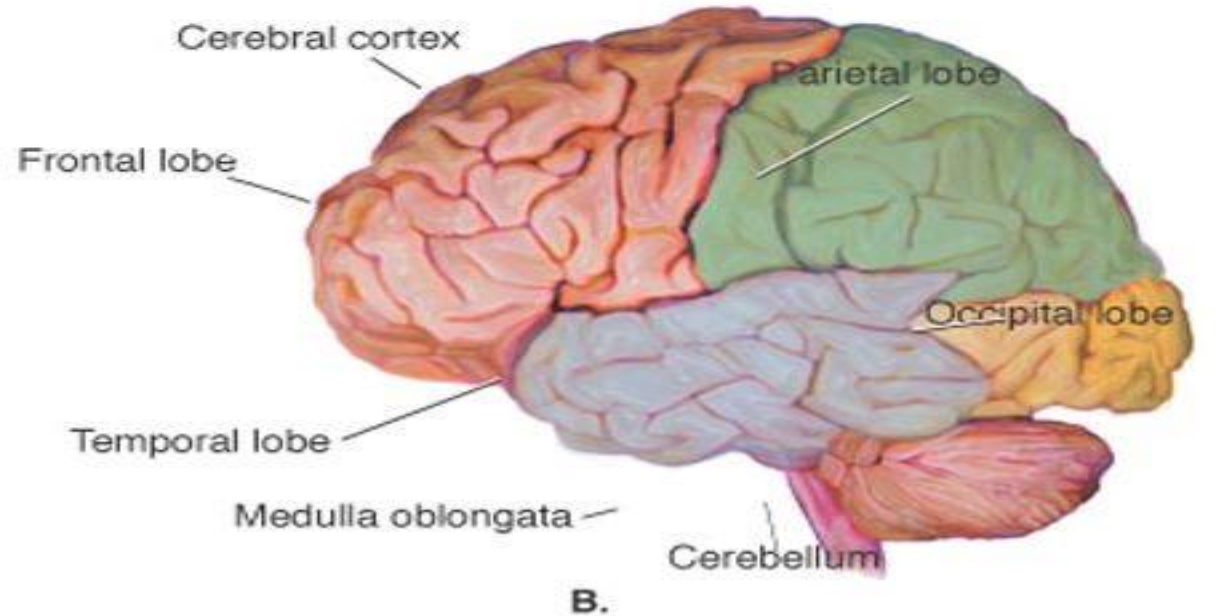
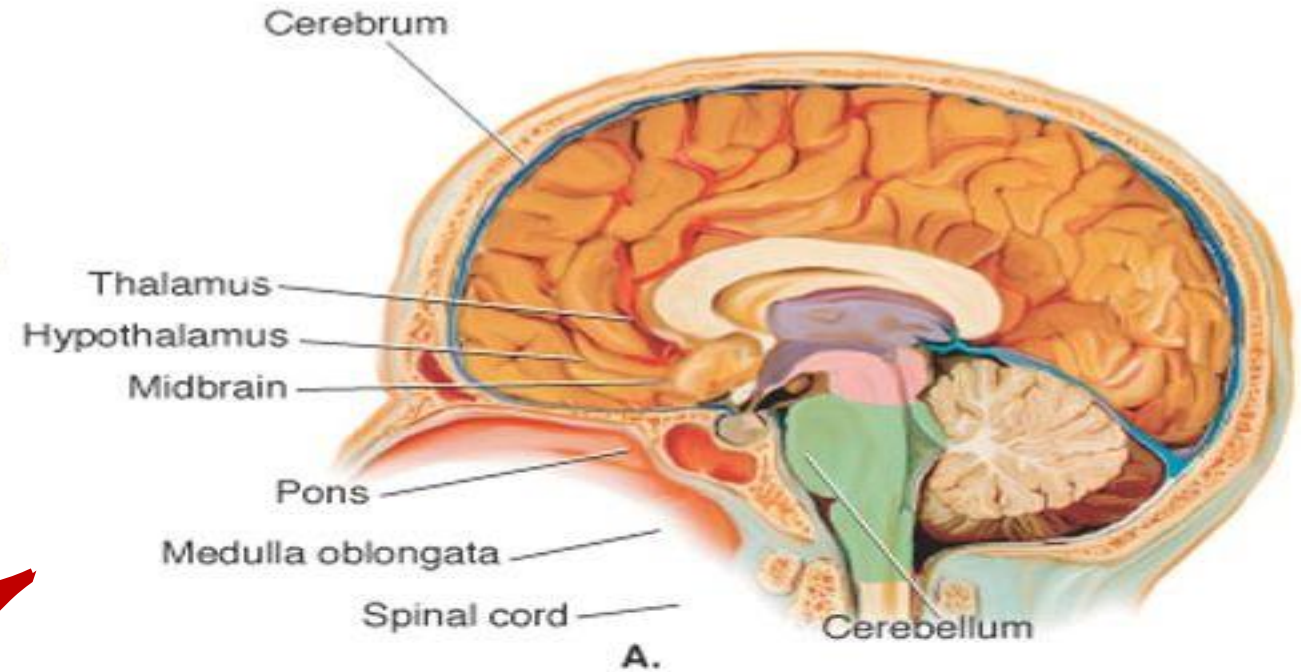
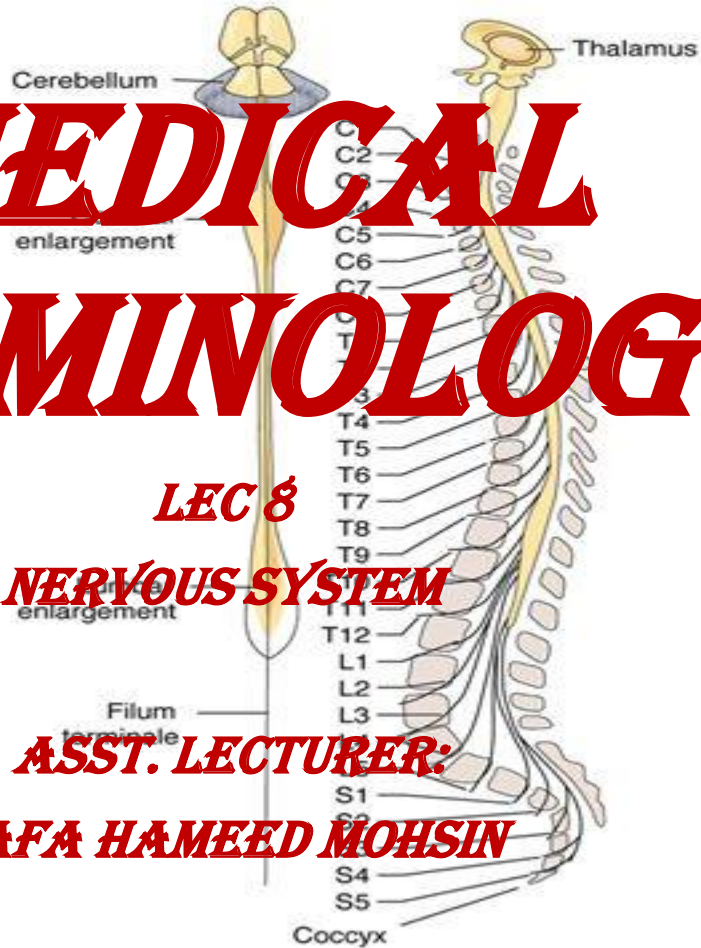
MEDICAL TERMINOLOGY

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NERVOUS SYSTEM

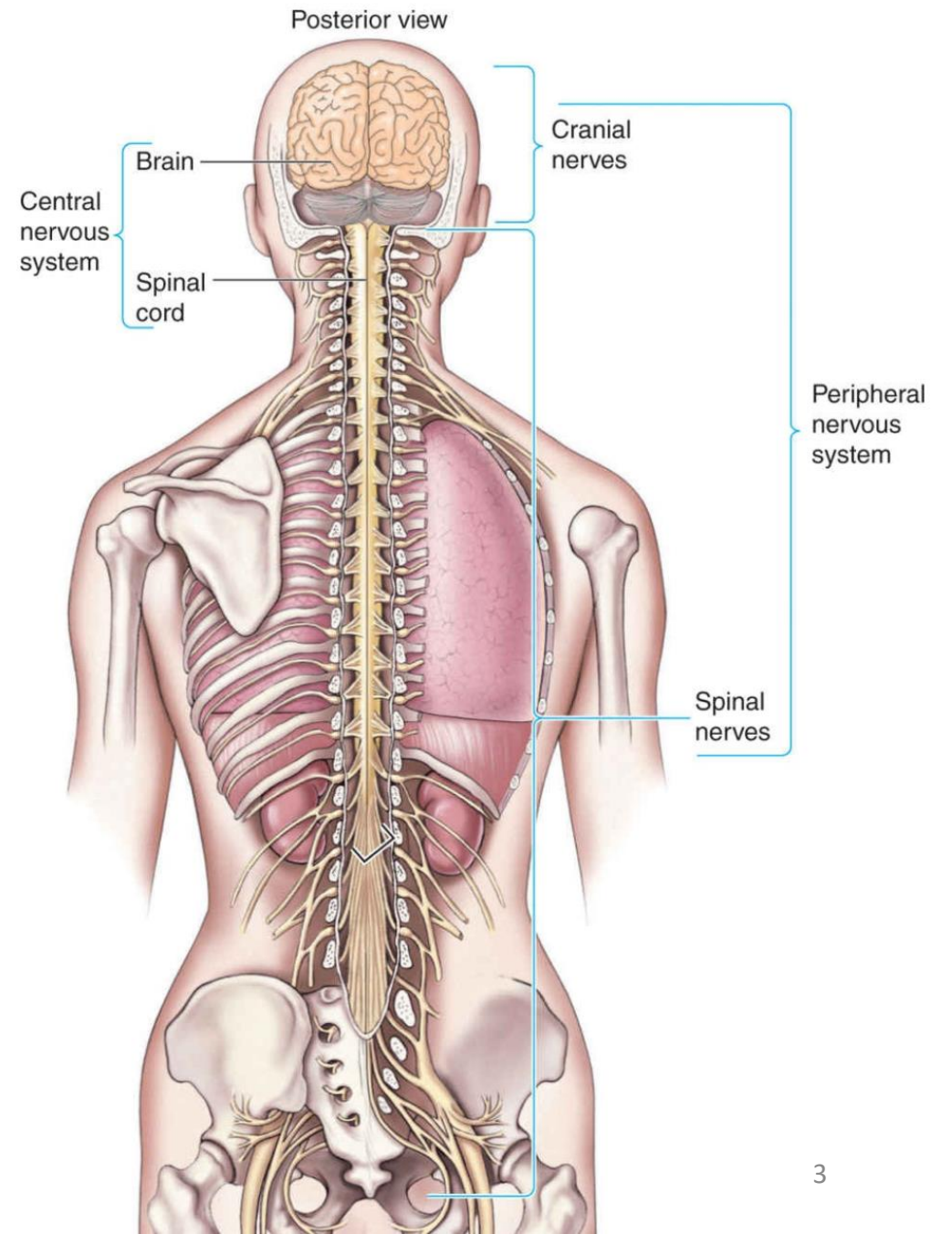
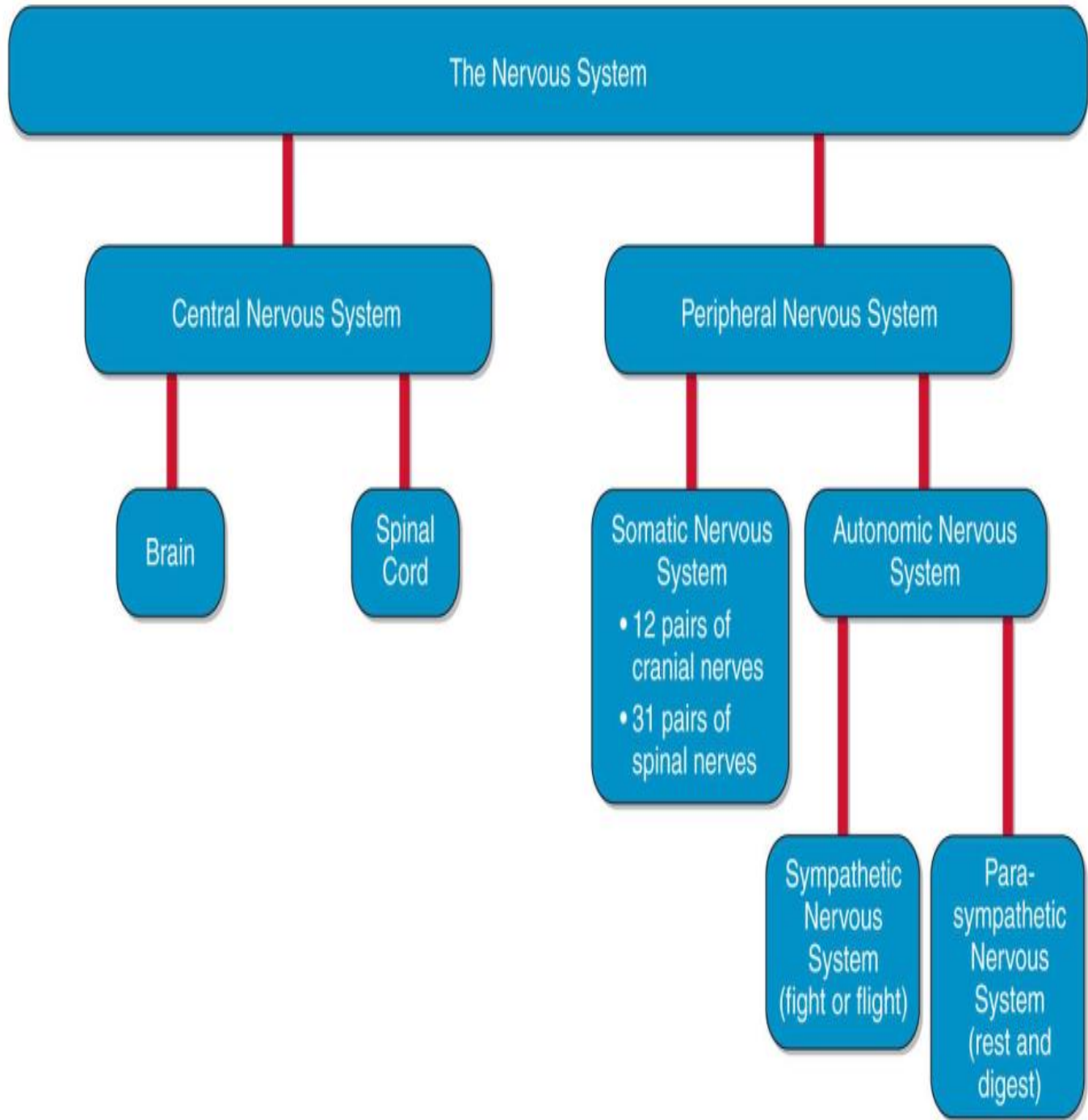
ASST. LECTURER:

Safa Hameed Mohsin



INTRODUCTION

- The nervous system, one of the most complex systems in the body, coordinates the body's involuntary and voluntary actions. It works in conjunction with the endocrine system to maintain homeostasis, a term that means “a state of equilibrium.” The nervous system also works together with the muscular system to control the body's voluntary and involuntary muscles.
- The nervous system has two main divisions:
 - 1-The central nervous system (CNS)
 - 2- The peripheral nervous system (PNS).



- Peripheral Nervous System controls skeletal muscles by means of the cranial and spinal nerves.

The PNS is divided into the **somatic** & **autonomic** nervous system:

- The **somatic** nervous system controls **voluntary** movement, whereas the **autonomic** nervous system controls **involuntary** muscles, the smooth and cardiac muscles, and glands.
- The **autonomic** nervous system is made up of :
 - 1- The **sympathetic** nervous system controls **quick** responses and is often called the “**fight or flight**” division because this system increases heart rate and dilates airways during periods of stress.
 - 2- The **parasympathetic** nervous system controls responses that **do not need to be fast** and is often called the “**rest and digest**” division.

WORD PARTS RELATED TO NERVOUS SYSTEM

- The CNS's control center is the brain, so many of the word parts used to describe structures of the nervous system are located in the head.
- **Cephal/o** is the word root for **head**, and **encephal/o** is the word root for **brain**.
- Another word root for **brain** is **cerebr/o**, which refers specifically to the **cerebrum** (the largest part of the brain).
- Both **psych/o** and **ment/o** refer to the **mind**, the part of the brain responsible for consciousness and higher functions.

Word Part	Meaning
arachn/o	spider
cephal/o	head
cerebell/o	cerebellum
cerebr/o	cerebrum; also, the brain in general
cortic/o	outer layer or covering
crani/o	cranium, skull
encephal/o	brain
gangli/o	swelling or knot
ganglion/o	swelling or knot
gli/o	glue
hydr/o	water

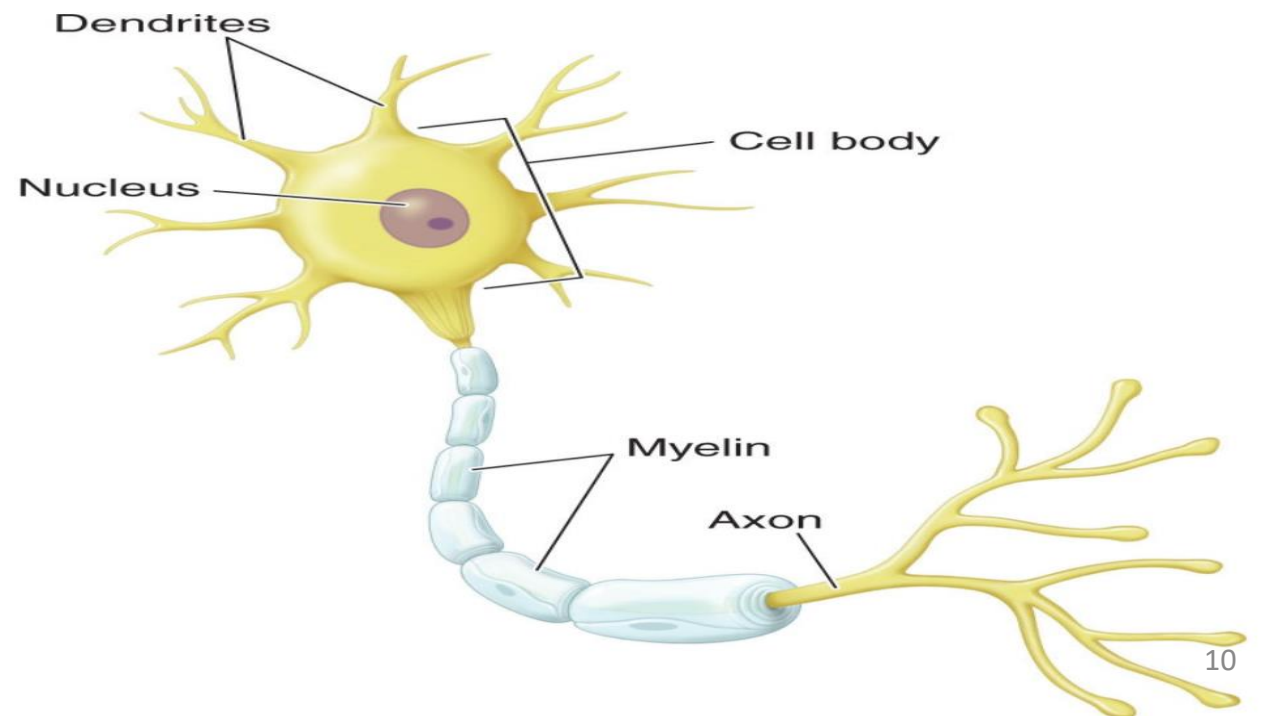
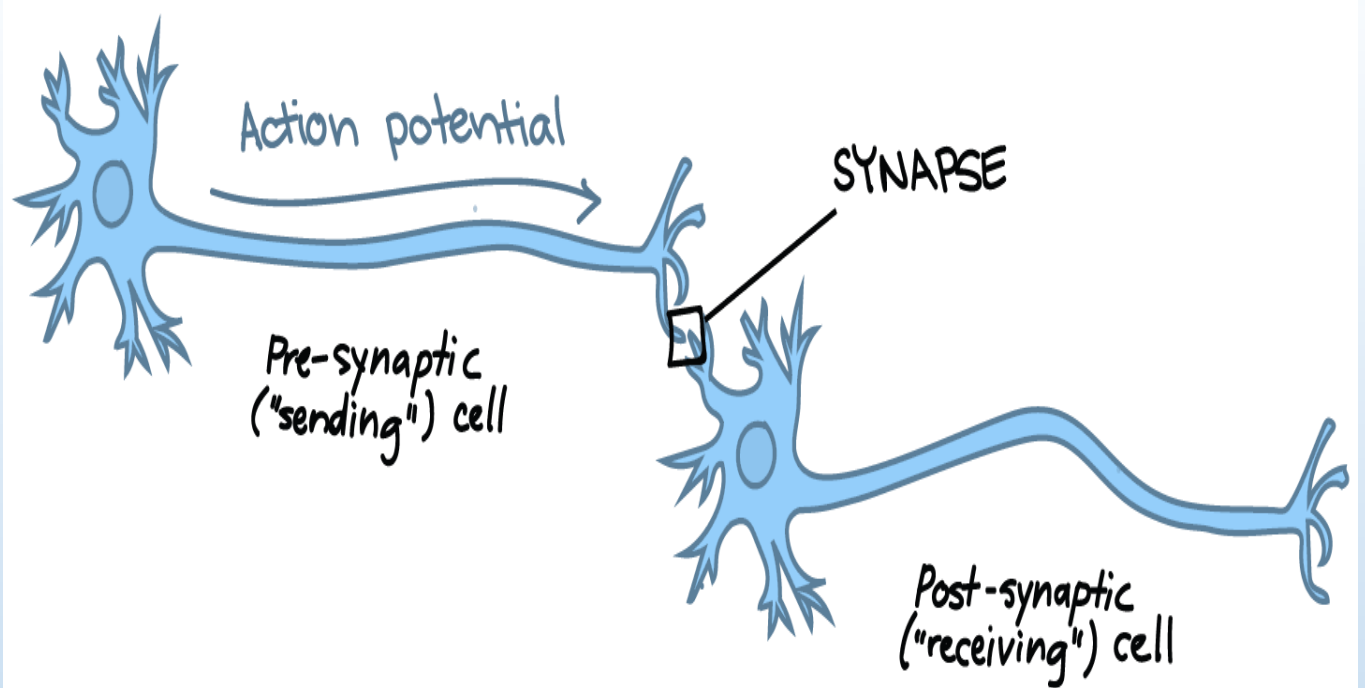
iatr/o	physician; to treat
-mania	morbid attraction to or impulse toward
meningi/o	membrane
ment/o	referring to the mind
-mnesia	memory
myel/o	in connection with the nervous system, refers to the spinal cord and medulla oblongata
neur/o	nerve, nerve tissue
-oid	resembling
-paresis	slight paralysis
-phasia	speech

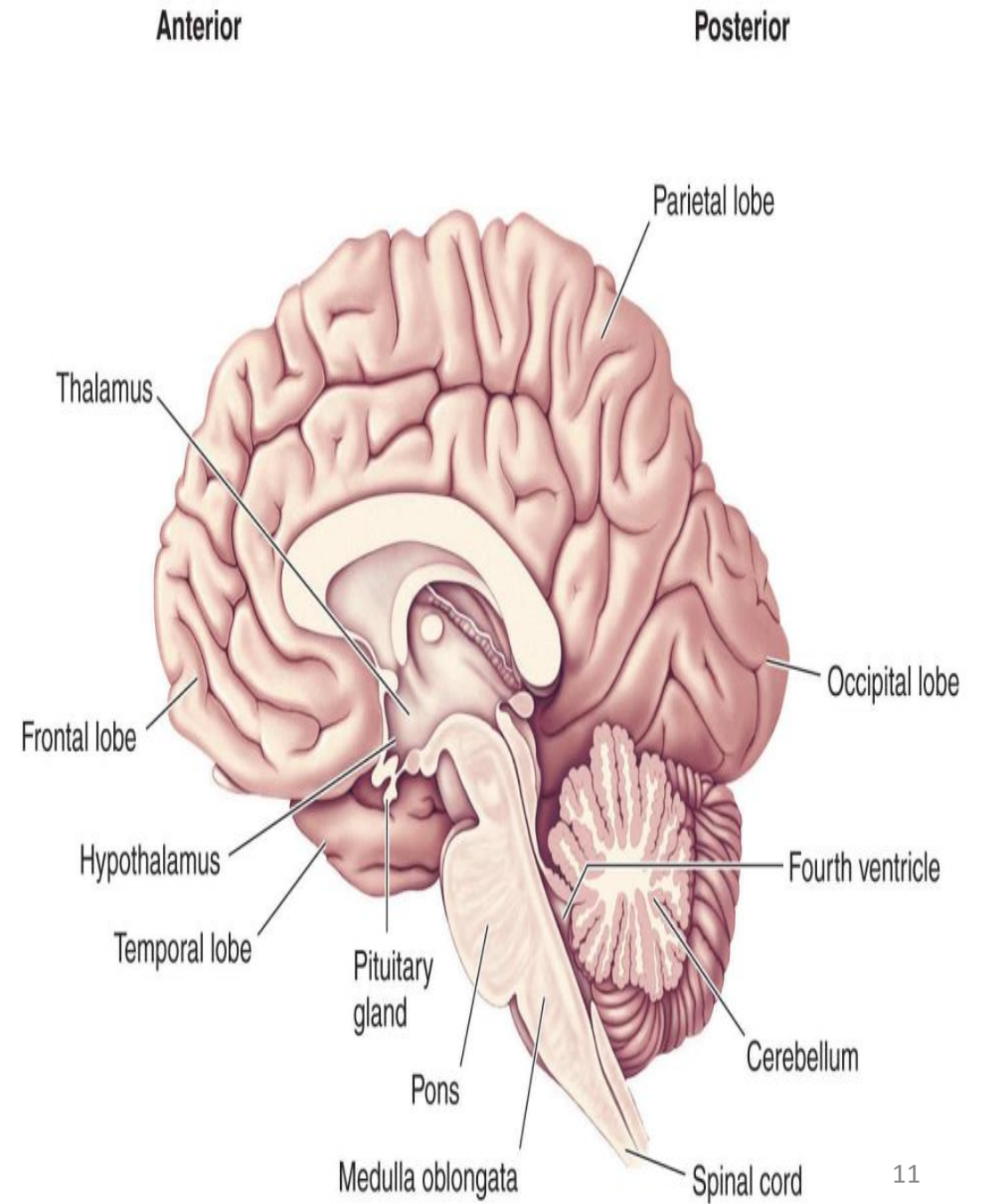
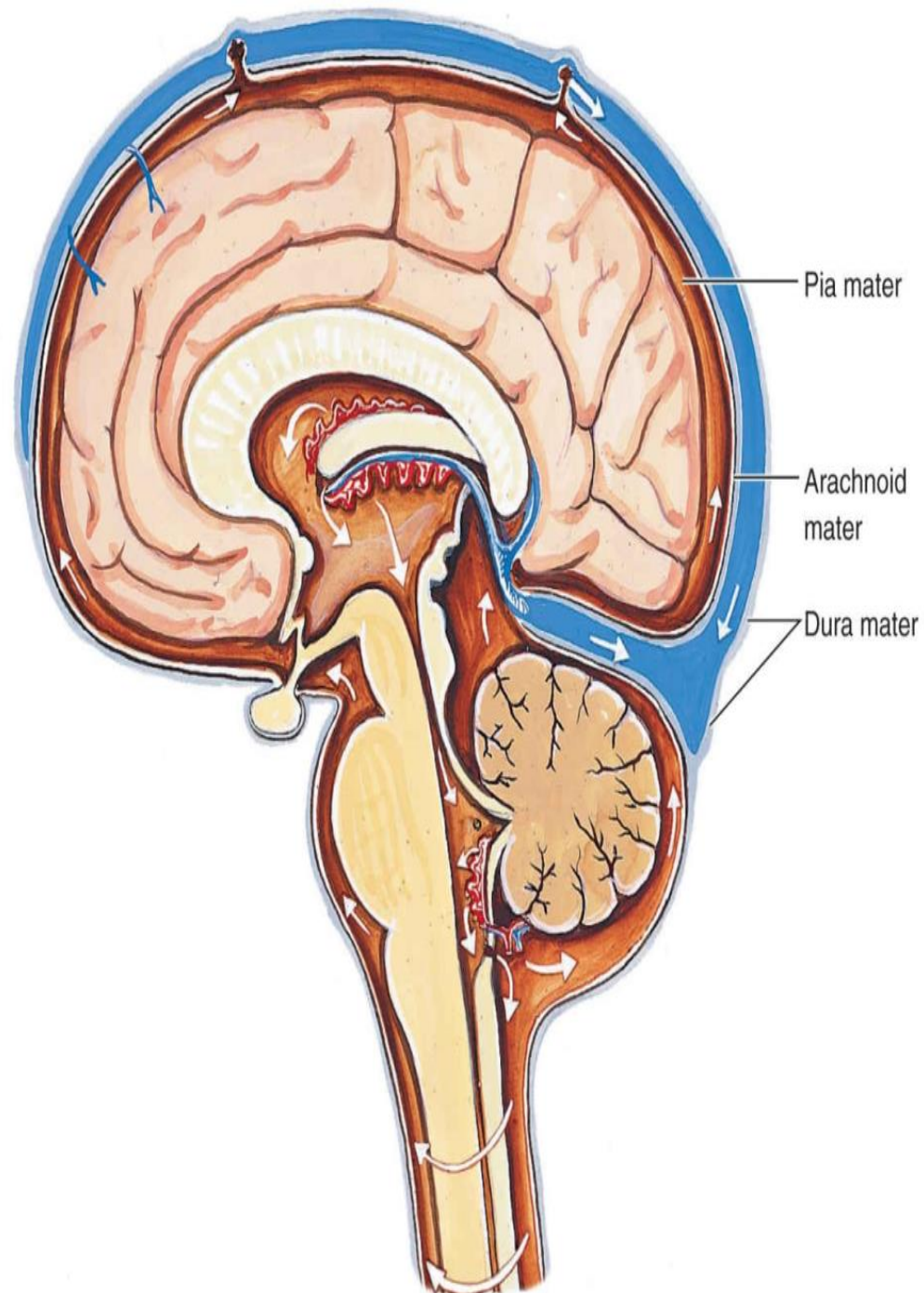
-phobia	fear
-plegia	paralysis
psych/o	mind
schiz/o	to split
spin/o	spine

STRUCTURE AND FUNCTION

- Nerve tissue is composed of fundamental units called ***neurons*** (nerve cells), which are separated, supported, and protected by specialized cells called ***neuroglia***.
- The three main parts of a neuron cell are its ***cell body, dendrites, and axon***.
- The dendrites, which project outward from the cell body, act as antennae that receive and transmit messages between the neuron and muscles, skin, other neurons, or glands. The cell body passes these messages to the axon, which conducts nerve impulses away from the cell body.
- The connecting points for these message transfers are called ***synapses***. Synaptic connections can occur between two nerve cells.
- The stimulus between the two cells is usually a chemical called a ***neurotransmitter***.

- Groups of neuron cell bodies within the PNS are called **ganglia** (*ganglion*, singular).
- Groups of neuron cell bodies within the CNS are called **nuclei** (*nucleus*, singular).
- Groupings of axons are called **nerves**, wherever they occur in the body.





- The major parts of the **brain** include the following:

A- Cerebrum: The cerebrum, the largest part of the brain, is where memories & conscious thoughts are stored.

B- Cerebellum: like the larger cerebrum located superiorly to it, its function: coordinates voluntary muscles & maintains our balance.

C- Diencephalon: is the link between the cerebral hemispheres and the brainstem. It contains both the thalamus and the hypothalamus.

1-The thalamus: processes sensory information.

2-The hypothalamus: coordinates the *autonomic nervous system and the pituitary gland*. It releases hormones, controls body temperature, and is involved with mood.

D- Brainstem: The brainstem contains connects the brain to the spinal cord. It is made up of the midbrain, pons (Latin for bridge), and medulla oblongata.

The brainstem consist of:

1- The midbrain processes visual and audible sensory information. Visual tracking, such as moving the eyes to read or follow a moving object, is an example of a midbrain function. It also transmits hearing impulses to the brain.

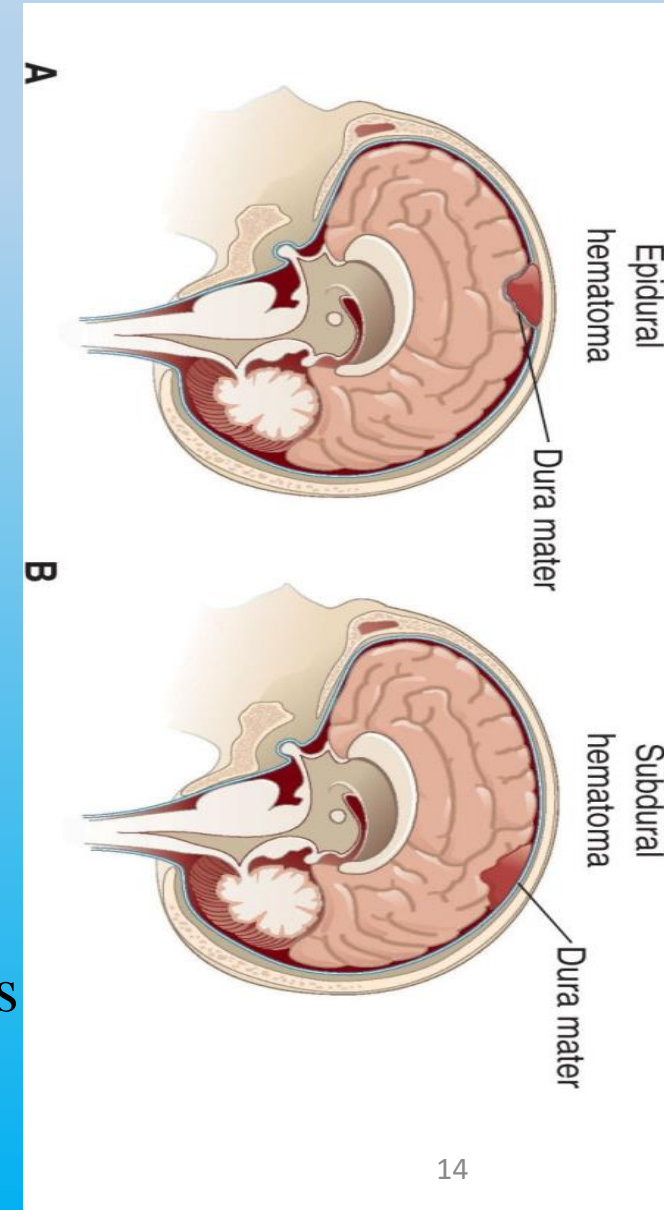
2- The pons passes information to the cerebellum and the thalamus to control subconscious activities such as regulating breathing.

3-The medulla oblongata sends sensory information to the thalamus to direct the autonomic functions of the heart, lungs, and other body organs.

- The brain and spinal cord are surrounded by membranes called *meninges*, which absorb physical shocks that could damage nerve tissue.
- **Cerebrospinal fluid (CSF)** is the colorless liquid that circulates in and around the brain and spinal cord that transports nutrients.

DISORDERS RELATED TO THE NERVOUS SYSTEM

- Disorders of the nervous system can result from trauma, vascular insults, tumors, systemic degenerative diseases, seizures & behavioral disorders.
- **Trauma:** head injuries can produce skull fractures, hemorrhage, swelling, and direct to the brain itself.
- **Concussion:** from the Latin word concussionem (a shaking) brain injury resulting from a hit to the head or violent shaking
- **Epidural hematoma:** a collection of blood in the space between the skull and dura mater
- **Subdural hematoma:** sub- (beneath); dura (hard); -al (adjective suffix); hemat/o (blood); -oma (tumor) a collection of blood trapped in the space beneath the dura mater, between the dura and arachnoid layers of the meninges



Tumors: are lesions (regions in an organ that are damaged) or neoplasms that may cause localized dysfunction, producing an increase in intracranial pressure (ICP).

Glioma: tumor of glial tissue

Meningioma: benign tumor of the meninges

Astrocytoma: is a tumor derived from a star-shaped type of neuroglia called an astrocyte

Systemic Degenerative Diseases: develop slowly over time include:

multiple sclerosis (MS), Parkinson's disease (PD), & Alzheimer's disease (AD).

A seizure:

occurs when there is an abnormal, uncontrolled burst of electrical activity in the brain.

Seizures may result from trauma, tumors, fevers, medications, or other causes.

Epilepsy:

is a chronic disorder characterized by recurrent seizures that result from the excessive discharge of neurons in the brain

Behavioral Disorders:

Some behavioral disorders are related to the nervous system.

1- Anxiety disorder: a feeling of apprehension or uneasiness that results from anticipation of danger

- **Obsessive–compulsive disorder (OCD):** type of anxiety disorder characterized by persistent thoughts and impulses with repetitive responses that interfere with daily activities
- **Phobias:** which are persistent, irrational fears of specific situations or things.

2-Mood disorders are a group of mental disorders involving a disturbance of internal emotional states. They include:

- **Depression**, which is characterized by loss of interest or pleasure in activities.
- **Bipolar disorder**, disorder characterized by manic episodes alternating with depressive episodes

3- Psychotic disorders are more serious than anxiety or mood disorders because they feature a loss of contact with reality and a deterioration of normal social functioning. An example of a psychosis is **schizophrenia**, which is characterized by abnormal thoughts, hallucinations, delusions, and withdrawal.

Other disorder :

Amnesia loss of memory

Aphasia loss of speech

Demyelination loss of myelin

Delirium altered state of consciousness

Dysphasia impaired speech

Encephalitis inflammation of the brain

Hemiparesis partial paralysis of one side of the body

Hemiplegia paralysis of one side of the body

Meningitis inflamed meninges

DIAGNOSTIC TESTS, TREATMENTS, & SURGICAL PROCEDURES

- **Antianxiety** agent drug used to suppress anxiousness and relax muscles
 - **Anticonvulsant** agent drug used to decrease seizure activity
 - **Antipsychotic** agent drug given to patients to affect behavior and treat psychiatric disorders.
-
- **Computed tomography (CT)** X-ray imaging using cross-sectional planes of the body
 - **Craniectomy**: excision of part of the skull
 - **Craniotomy**: incision into the skull
 - **Electroconvulsive therapy (ECT)** or electroshock therapy a controlled convulsion produced by passing an electric current through the brain

DIAGNOSTIC TESTS, TREATMENTS, & SURGICAL PROCEDURES

- **Myelography**: radiography of the spinal cord and nerve roots
- **Neuroplasty**: surgery to repair a nerve
- **Sedatives**: drugs used to induce calming effect or sleep
- **Electroencephalography**: record of the electrical activity of the brain
- **lumbar puncture** (LP) insertion of a needle into the subarachnoid space between the third and fourth or fourth and fifth lumbar vertebrae to withdraw fluid for diagnosis

PRACTICE AND PRACTITIONERS

- **Neurologist** a medical specialist who treats nervous system disorders
- **Neurology** medical specialty dealing with the nervous system
- **Neurosurgeon**: surgeon who specializes in operations on the nervous system
- **Psychiatrist** a medical doctor who specializes in the diagnosis and treatment of psychological disorders
- **Psychologist** doctor of psychology who specializes in the diagnosis and treatment of psychological disorders

A top-down view of a wooden desk. On the left is a black alarm clock with a yellow face and a yellow loop. In the center is a white pen. On the right is a spiral-bound notebook with the text 'Thank You For Your Attention' written in black cursive. In the bottom left corner, a pair of black-rimmed glasses is partially visible.

Thank You
For Your
Attention