University of Anbar

College of Dentistry

Year: First

Course: Medical Terminology

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Terminology

Terminology

- **Terminology** refers to **special words or expressions** used in relation to a **particular subject or activity**.

- **TERM; A word** or **phrase** used to describe a thing or to express a concept, especially in a particular kind of language or branch of study.

- **Medical terminology** is a special **vocabulary** used by health care professionals for effective and accurate communication.

- Medical terminology is **consistent** and **uniform** throughout the world because it is based mainly on **Greek** and **Latin** words.
- It is also **efficient**; although some of the terms are long, they often **reduce an entire phrase to a single word**. The one-word ***gastroduodenostomy***, for example, stands for *"a communication (stomy) between the stomach (gastr) and the first part of the small intestine, or duodenum (duoden)."*
- The medical vocabulary is **vast**, and learning it may seem like learning the entire vocabulary of a foreign language.
- It is always **expanding**.
- Most medical terms can be divided into **component parts—roots, prefixes, and suffixes**—that maintain the **same meaning** whenever they appear. By learning these meanings, you can **analyze** and **remember** many words.

Word Parts

- Terms are usually formed by a combination of small words or syllables linked in a “building block” or word chain. Knowing the basic small divisions and the combining methods can assist in the understanding of word meanings.

- When broken into smaller parts, most longer terms reveal:
  - a **prefix** that ***modifies*** the term,
  - a **single-** or **double-root structure** that provides the ***foundation*** to the term, and
  - a **suffix** that ***qualifies*** the word meaning.

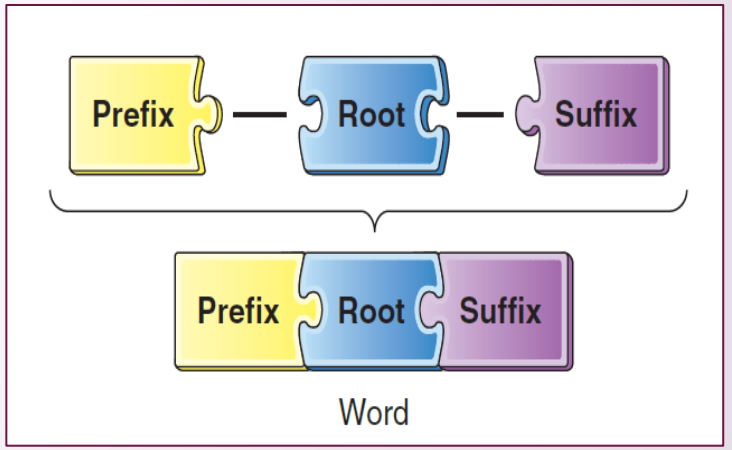
- **Example:**

  write; writer; rewrite

  write = root

  write + -er (suffix) = writer (one who writes)

  Re-(prefix) + write = rewrite (to write again)



1. The root

- The **root** is the ***fundamental unit*** of each medical word**.** This ***establishes the basic meaning*** of the word and is the part ***to which modifying prefixes and suffixes are added***.
- **Root words** are frequently associated with a **body part**.
- A **word root** is always the **subject** or **main topic** of the **medical term**.

- **<u>Examples</u>:**
  - ***Dent*** is a word root that means tooth.

    Dentistry: is the medical field that deals with the teeth and the oral cavity.
  - ***Cardi/o*** a word root that means heart.

    Cardiology is the medical specialty concerned with the heart.

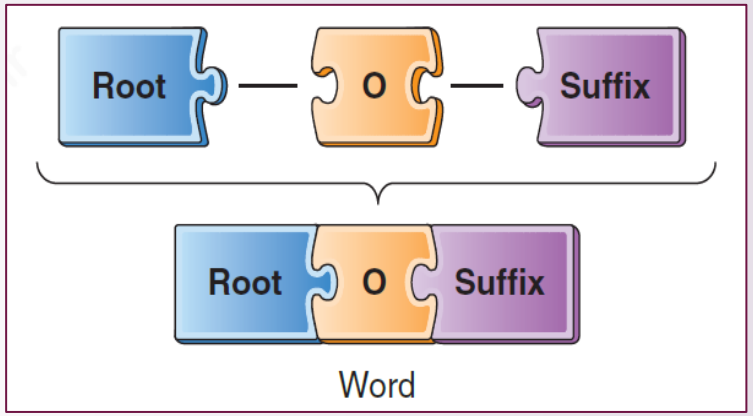
    Cardiomegaly is the enlargement of the heart.
  - ***Derm*** means skin.

    Dermatology is the medical specialty that is concerned with the skin.

- **Compound words** contain more than one root. The words *eyeball*, *bedpan*, *frostbite*, and *wheelchair* are examples. Some compound medical words are:
  - ***cardiovascular*** (pertaining to the heart and blood vessels)
  - ***urogenital*** (pertaining to the urinary and reproductive systems)
  - ***lymphocyte*** (a white blood cell found in the lymphatic system)

2. Combining Forms

- When prefixes, suffixes or word roots are joined together, vowels can be added for pronunciation purposes.
- Roots shown with a combining vowel are called **combining forms**.
- **Combining Form Vowel Rules:**



1. Vowel is used when the suffix begins with a consonant:

When a suffix beginning with a consonant is added to a root, a vowel (usually an 'o') is inserted between the root and the suffix to aid in pronunciation.

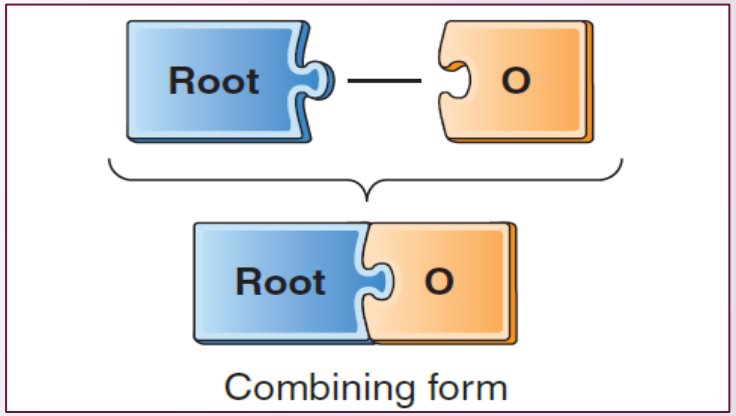
Thus, when the suffix *-logy*, meaning "study of," is added to the root *neur*, meaning "nerve or nervous system," a combining vowel is added:

- neur + o + logy = **neurology** (study of the nervous system)
- **Cardiology** = *cardi* + *o* + *-logy*

  root suffix

  heart study of

  cardio = combing form = root + combining vowel



Combining Form Vowel Rules:

2. Vowel is not used when the suffix begins with a vowel:

neur + *-itis* = **neuritis** (inflammation of a nerve)
root suffix

3. A combining vowel can also be used when two or more word roots are joined together:

Osteoarthritis (the inflammation of the joints and bones)

Oste + O + arthr + itis
root root suffix
bone + combining vowel + the joints+ inflammation

4. The use of the combining vowels, typically the vowel “O”, is primarily used for the sake of being able to pronounce the medical term, rather than for the sake of proper grammar.

5. The combining vowel neither adds nor subtracts from the term’s meaning.

- **Combining forms** which can be used at the beginning or in the middle of the word:

1. ***cardio*** = heart; *cardiogram*
2. ***hepato*** = liver; *hepatotoxin*
3. ***gastro*** = stomach; *gastrology*
4. ***entero*** = intestine; *enterology*
5. ***ophthalmo*** = eye; *ophthalmoscope*
6. ***dermato*** = skin; *dermatology*
7. ***stomato*** = mouth; *stomatology*
8. ***neuro*** = nervous system; *neurology*
9. ***uro*** = urinary system; *urogenital / urolith/ urology*
10. ***gyneco*** = woman; *gynecology*
11. ***histo*** = tissue; *histology*
12. ***radio*** = rays; *radiogram*
13. ***onco*** = tumor; *oncology*
14. ***bio*** = life; *biology / biogenesis*

3. Prefixes

A prefix is the first building block of a word division that begins a term. A prefix is placed **before a word root** to alter the word's meaning (makes a word more specific) by indicating **number, color, size, location,** or **condition**.

- **Examples**:
  - **hyper- = excessive**; *hypertension*= high blood pressure
  - **hypo- = less**; *hypoinsulinaemia* = low insulin in blood
  - **pre- = before**; *premolar* = the tooth that is located before the molar
    premature = before complete growth or development
  - **post- = after**; *postnatal* = after birth
  - **micro- = small**; *microscope* = a device used to see very small objects
  - **macro- = big**; *macrocyte* = a big cell

4. Suffixes

- A suffix is an element added to the **end of a root word or combining form** to ***describe or qualify*** the word meaning. A suffix may indicate that the word is a noun or an adjective and often determines how the definition of the word will begin.
- A suffix **cannot stand alone** and is usually united with a root element by inserting a combining vowel (o) unless the suffix begins with a vowel.
- Suffixes usually, but not always, indicate a procedure, condition, disorder, or disease.
- **Examples**:

-ectomy = surgical excision (surgical removal of an organ); *gingiv**ectomy***= gingiva + -ectomy = surgical removal of gum tissue

-itis = inflammation; *gastr**itis*** = the inflammation of the stomach

-megaly = enlargement; *splen**omegaly*** = spleen + O + -megaly = enlargement of spleen

Note:

These elements are identified by specific characters:

Prefixes -

- Suffixes

Word roots /

- **/** is where the connecting vowel attaches to the root: (*gastr/o*).

Pronunciation

- **Silent Letters and Unusual Pronunciations**

Letter(s)	Pronunciation	Example	Definition of example
ch	k	chemical KEM-i-kl	pertaining to chemistry
dys	dis	dystrophy DIS-trō-fē	poor nourishment of tissue
eu	u	euphoria ū-FOR-ē-a	exaggerated feeling of well-being
gn	n	gnathic NATH-ik	pertaining to the jaw
ph	f	pharmacy FAR-ma-se	a drug dispensary
pn	n	pneumonia nū-MŌ-nē-a	inflammation of the lungs
ps	s	pseudo- SŪ-dō	false
pt	t	ptosis TŌ-sis	dropping
rh	r	rheumatic rū-MAT-ik	pertaining to rheumatism, a disorder of muscles and joints
x	z	xiphoid ZIF-oyd	pertaining to cartilage attached to the sternum

Pronunciation

- The combinations **(pn ; pt; gn)** may be pronounced differently when they appear within a word, as in:
  - ***apn****ea* (AP-nē-a) = cessation of breathing
  - nephro***pt***osis (nef-rop-TŌ-sis) = dropping of the kidney
  - pro***gn***osis (prog-NŌ-sis) = prediction of the outcome of disease

- **Words ending in *x***

When a word ending in **x** has a suffix added, the **x** is changed to a g or a c. For example,

- **pharynx** (throat) becomes ***pharyngeal*** (fa-RIN-jē-al), to mean "pertaining to the throat";
- **coccyx** (terminal portion of the vertebral column) becomes ***coccygeal*** (kok-SIJ-ē-al), to mean "pertaining to the coccyx";
- **thorax** (chest) becomes ***thoracotomy*** (thor-a-KOT-ō-mē) to mean "an incision into the chest."

Pronunciation

- **Soft and Hard *c* and *g***
  - C (before a,o,u)= K — cavity, colon, cure
  - C (before e,i) = S — cephalic, cirrhosis
  - G (before a,o,u)= G — gallbladder, gallstone
  - G (before e,i) = J — generic, giant

- **Suffixes beginning with *rh***

When a suffix beginning with **rh** is added to a root, the **r** is doubled:

- ***hem/o*** (blood) + ***-rhage*** (bursting forth) = **hemorrhage** (a bursting forth of blood)
- ***men/o*** (menses) + ***-rhea*** (flow, discharge) = **menorrhea** (menstrual flow)

Homonyms

Some words are very similar in sound and spelling, but have different meanings. These **homonyms** (**HAHM**-oh-nims) may cause confusion and alter the meaning of what is written so care must be taken to check the meaning and the spelling of a word when using these terms. Some common homonyms used in dentistry are:

- **die:** tooth or bridge pattern used in prosthodontic dentistry

  dye: coloring material; may be used to indicate plaque
- **auxiliary:** helping subsidiary, such as a dental assistant

  axillary: underarm site; may be used to obtain body temperature
- **esthetics:** pertaining to beauty

  aesthesia: loss of pain sensation
- **facial:** (a) pertaining to the face; (b) front surface of incisor tooth

  fascial: pertaining to the fibrous membrane on muscles
- **palpation:** use of hand or finger pressure to locate/examine

  palpitation: condition of racing or increased heartbeat
- **suture:** area or line where two bones unite, such as coronal suture

  suture: stitch or staple repairing or closing wound

Abbreviations – Acronyms

Acronyms (ACK-roh-nims) are abbreviations formed from the first letter of each word in a phrase. They represent a combination of word pieces, or initials that can indicate an occupation, specialty, procedure, condition, or chemical. Below are some examples of abbreviations or acronyms:

- **AIDS:** acquired immune deficiency syndrome
- **ALARA:** as low as reasonably achievable
- **ANUG:** acute necrotic ulcerative gingivitis
- **CDA:** Certified Dental Assistant
- **CCD:** charge coupled device
- **CAT:** computer assisted tomography
- **CEREC:** ceramic reconstruction
- **DDS/DMD:** Doctor of Dental Surgery or Doctor of Dental Medicine
- **FFD:** film focus distance or focal film distance

- **HIPAA:** Health Insurance Portability and Accountability Act
- **HIV:** human immunodeficiency virus
- **HVE:** high volume evacuation
- **MPD:** maximum permissible dose
- **MRSA:** methicillin-resistant *Staphylococcus aureus*
- **MSDS:** Material Safety Data Sheet
- **PID:** Position Indicating Device
- **PDR:** *Physician's Desk Reference*
- **PPE:** personal protection equipment
- **RDH:** Registered Dental Hygienist
- **ZOE:** zinc-oxide eugenol

References

Cohen, B. J. (2021). *Medical terminology: an illustrated guide* (9th ed.). Jones & Bartlett Learning.

Dofka, C. M. (2013). *Dental terminology* (3rd ed.) Delmar, Cengage Learning.

TERMINOLOGY

PREFIXES + ROOTS + SUFFIXES

➢ PREFIXES

1. Prefixes denoting Quantity or Number

Prefix	Meaning	Example
a- an-	without	***an*emia**
bi-	two, double	***bi*furcation**
di-	two, twice	***di*atomic** (having two atoms)
hemi-	half	***hemi*section**
cent-	hundred	***cent*imeter**
deca(i)-	ten	***deci*bel**
holo-	all	***holi*stic**
mon/o-	one	***mono*mer**
multi-	many	***multi*cellular** (consisting of many cells)
poly-	many	***poly*merization**
prim-/i-	first	***prim*ary**
quad-/quat-	four	***quad*rant**
semi-	half	***semi*luminal**
tri-	three	***tri*geminal**
uni-	one	***uni*lateral**

Exercise 1

Underline the prefixes used in the following words and specify what number or amount each represents:

1. **anaerobic** _____oxygen/s
2. **hemisphere** _____sphere/s
3. **quaternary** _____element/s
4. **primordal** _____form/s
5. **anesthesia** _____feeling/s
6. **monocular** _____eyepiece/s
7. **anemia** _____hemoglobin/s
8. **bicuspid** _____cusp/s
9. **tripod** _____foot/feet
10. **polypnea** _____breath/s
11. **unilateral** _____side/s
12. **trifurcation** _____division/s
13. **semicoma** _____coma/s
14. **decimeter** _____meter/s
15. **monocell** _____cell/s

2. Prefixes denoting Color

Prefix	Color	Example
albus-	white	***albu*men**
chlor-/o-	green	***chlor*ophyll**

cyan-/o-	blue	***cyan*osis** (bluish discoloration of the skin due to lack of oxygen)
erythr-/o-	red	***erythr*ocyte** (red blood cell)
leuk-/o-	white	***leuk*oplakia** ***leuk*emia** (cancer of white blood cells)
melan-/o-	black	***melan*oma**
xanth-/o-	yellow	***xanth*oma** (yellow growth on the skin)

A root occasionally has more than one prefix with the same meaning. One meaning may stem from Latin and another may be a Greek or French version. For example, ***alba***, from the Latin word ***albus***, refers to **white**, such as in ***albumen*** and ***albino***. ***Leuko*** is a Greek prefix meaning **white** and is used in ***leukoplakia*** (a white, precancerous patch found inside the cheek). Although *leuko* may be more popular, both prefixes are correct.

Exercise 2

Match each prefix in Column A with the color it represents in Column B. (An answer in Column B may be used more than once.)

Column A	Column B
_____melan-/o-	A. white
_____cyan-/o-	B. yellow
_____chlor-/o-	C. violet
_____erythr-/o-	D. blue
_____leuk-/o-	E. black
_____alba-	F. red
_____xanth-/o-	G. green

3. Prefixes denoting Size or Degree

Some prefixes are used to qualify the size or degree of development of the root term.

Prefix	Meaning	Example
hyper-	over, excess, abnormally high, increased	***hyper*trophy** ***hyper*thermia** (high body temperature)
hypo-	under, below, abnormally low, decreased	***hypo*plasia** ***hypo*secretion** (underproduction of a substance)
iso-	equal, same	***iso*graft** ***iso*cellular** (composed of similar cells)
macro-	large, abnormally large	***macro*dontia**
micro-	small, minute	***micro*be**
normo-	normal	***normo*volemia** (normal blood volume)

ortho-	straight, correct, upright	***ortho*dontics** (branch of dentistry concerned with correction and straightening of the teeth)
pan-	all around	***pan*oramic** ***pan*demic** (disease affecting an entire population)
pseudo-	false	***pseudo*plegia** (false paralysis)
re-	again, back	***re*flux** (backward flow)
ultra-	extreme, beyond	***ultra*sonic**

Exercise 3

Give the meaning of the prefix underlined in the following words:

1- macroglossia= _____tongue
2- isocoria = _____pupil size
3- hyperglycemia= _____blood sugar
4- hypocementosis= _____cementum
5- micrognathia= _____jaw
6- panoramic = _____view
7- ultrasonic = _____sounds

4. Prefixes denoting Location or Direction

Some prefixes are used to specify the location or the position of the root term and the involvement occurring, such as treatment occurring inside (***endo***) the tooth or treatment around (***peri***) the gingiva.

Prefix	Meaning	Example
ab-	away from	***ab*sent** ***ab*duct** (to move away from the midline)
ad-	toward/near	***ad*jacent** ***ad*duct** (to move toward the midline)
ambi-	both sides	***ambi*dextrous**
ana-	apart	***ana*lysis**
ante-	in front	***ante*rior**
de-	down from, without, removal, loss	***de*hydration** ***de*calcify** (remove calcium from)
dexi- dextr/o-	right side	***dex*ter** ***dextro*cardia** (Condition in which the heart is displaced to the right)
dia-	complete, through	***di*alysis**
ecto-	outside	***ecto*pic**
endo-	in, within	***endo*dontic**
epi-	upon/over	***epi*dermis**
ex/o-	out from, away from, outside	***ex*cretion**
in-	into/in	***in*cision**
infra-	below	***infra*orbital**
inter-	in midst of	***inter*dental**
im-	into/position	***im*plant**

mes-/o-	middle, among	***mesio*clusion**
para-	near/beside	***par*enteral**
peri-/o-	around	***perio*dontal**
post-	after/later	***post*erior**
pre-/ante-	before	***pre*molar**
retro-	behind/back	***retro*molar**
sub-	under, lesser	***sub*dermal**
supra-	above/over	***supra*orbital**
syn-	together	***syn*ergism**
trans-	through	***trans*plant**

Exercise 4

Using the prefix list given, choose the prefix that best describes the meaning of the term:

ab-, ad-, ambi-, ana-, de-, dexi-, dia-, ecto-, endo-, ex-, in-, mes-, peri-, post-, pre-, retro-, sub-, supra-, syn-, trans-

1. around = _____
2. outside = _____
3. behind = _____
4. under = _____
5. toward = _____
6. mid/among= _____
7. apart = _____
8. through = _____
9. together = _____
10. down from = _____
11. right = _____
12. after = _____
13. before = _____
14. both sides = _____
15. into = _____
16. away from = _____
17. out from = _____
18. within = _____
19. above = _____
20. complete = _____

5. Prefixes denoting Condition

Some prefixes are used to denote the condition of the root element. These prefixes may indicate that the condition is new (***neo***) or that the root term is not in effect, as in the word ***infertile*** (not fertile).

Prefix	Meaning	Example
a-, an-	not, without, lack of, absence	***an*odontia** ***an*hydrous** (lacking water)
anti-	opposite to, against	***anti*septic** (agent used to prevent infection)
brady-	slow	***brady*cardia**
con-	with	***con*nective**
contra-	against, opposite	***contra*ngle**
dis-	take away, absence, removal, separation	***dis*infectant**
in-	not	***in*soluble**
mal-	bad	***mal*occlusion**
malaco-	soft	***malaco*sis**

neo-	new	***neo*plasm**
pachy-	thick	***pachy*derma**
sclero-	hard	***sclero*ma**
tachy-	fast	***tachy*cardia**
un-	non/not	***un*erupted**

Exercise 5

Match the prefix in Column A to the term it best describes in Column B:

Column A	Column B
1) neo-	a) soft
2) pachy-	b) bad
3) con-	c) without
4) sclero-	d) against
5) dis-	e) hard
6) a- or an-	f) fast
7) mal-	g) opposite to
8) anti-	h) not/non
9) un- or in-	i) new
10) tacky-	j) removal
11) contra-	k) with
12) malaco-	l) slow
13) brady-	m) thick

➢ ROOT WORD

Common Dental Root/Combining Forms			
Root Word	**Sounds Like**	**Combo Form**	**Pertains To**
alveolar	(al-**VEE**-oh-lar)	alveo	alveolus
apical	(**AY**-pih-kahl)	apic-/o-	apex of a root
axis	(**ACK**-sis)	ax-/o-	axis/midline
buccal	(**BUCK**-ahl)	bucc-/o-	cheek
cheilo	(key-**LOH**)	cheil-/o-	lip
coronal	(kor-**OH**-nal)	coron-/o-	crown
dens	(**denz**)	dent-/o-	tooth
distal	(**DIS**-tal)	dist-/o-	farthest from center
enamel	(ee-**NAM**-el)	ename-/o- or amel-/o-	tooth, enamel tissue
fluoride	(**FLOOR**-eyed)	fluor-/o-	chemical, fluoride
frenum	(**FREE**-num)	frene-	frenum
front	(**front**)	front-/o-	forehead

gingiva	(**JIN**-jih-vah)	gingiv-/o-	gingiva, gum tissue
glossa	(**GLOSS**-ah)	gloss-/o- or gloss/a	tongue
gnatho	(nah-**TH**-oh)	gnath-/o-	jaw, cheek
incisor	(in-**SIGH**-zore)	incis-/o-	incisor tooth
labia	(**LAY**-bee-ah)	labi-/o-	lip area
lingua	(**LING**-wa)	lingu-/o-	tongue
mandible	(**MAN**-dih-bull)	mandibu-/a-	lower jaw
maxilla	(**MACK**-sih-lah)	maxilla-/o-	upper jaw
mesial	(**ME**-zee-al)	mesi-/o-	middle, midplane
mucosa	(myou-**KOH**-sah)	muc-/o-	tissue lining an orifice
occlude	(oh-**KLUDE**)	occlus-/o-	occluding, jaw close
odont	(oh-**DONT**)	odont-/o-	tooth
orthos	(**OR**-thohs)	orth-/o-	straight, proper order
stoma	(**STOW**-mah)	stoma-	mouth
temporal	(**TEM**-pore-al)	tempor-/o-	temporal bone

Exercise 6

Place a root element for the given words in the blanks provided.

1. gum tissue _____
2. lip area _____
3. root apex _____
4. tongue _____
5. upper jaw _____
6. mouth opening _____
7. middle _____
8. orifice tissue lining _____
9. far from center _____
10. crown area _____

➢ SUFFIXES

Word endings can act as an adjective or indicate time and size, condition, agents, or specialists. Suffixes used as adjectives are word endings that describe or show a relationship. Suffixes have the ability to transform a noun or verb into an adjective, or verbs into nouns, by the addition of a word ending.

1. Suffixes in Adjective Use

The suffixes below are all adjective endings that mean "pertaining to," "like," or "resembling". There are no rules for which ending to use for a given noun. Familiarity comes with practice.

Suffix	Shows Relation to the Root	Sounds Like
-ac	cardi*ac* (heart)	(**CAR**-dee-ack)
-al	gingiv*al* (gum tissue)	(**JIN**-jah-val)
-ar	alveol*ar* (alveolus)	(al-**VEE**-oh-lar)
-ary	maxill*ary* (maxilla)	(**MACK**-sih-**lair**-ee)

-eal	pharyng*eal* (pharynx)	(fare-**IN**-gee-al)
-form	fusi*form* (spindle shape)	(**FEW**-zah-form)
-gram	radiogram (X-ray)	(**RAY**-dee-oh-gram)
-graphy	sialography (saliva measurement)	(**sigh**–ah-**LOG**-raph-fee)
–ic or tic	cariogenic (start of decay)	(**CARE**-ee-oh-**jen**-ick)
-ior	posterior (in the rear)	(pahs-**TEE**-ree-or)
-oid	coronoid (crown)	(**KOR**-oh-noyd)
-ous	venous (vein)	(**VEE**-nus)

Exercise 7

Underline the suffix indicating relationship in each given word, and write it in the blank next to the word.

1. filliform _____
2. chronic _____
3. kilogram _____
4. condyloid _____
5. endosteal _____
6. posterior _____
7. vascular _____
8. squamous _____
9. apical _____
10. cardiac _____
11. xenograph _____
12. intraligamentary _____

2. Suffixes indicating Condition

A suffix added to a root may indicate the condition of the root foundation. It may denote that disease (*pathy*) or inflammation (*itis*) occurs, or it may merely indicate that the condition exists (*tion*).

Suffix	Condition of Root Foundation	Sounds Like
-ant	etch*ant* (etching)	(**ET**-chent)
-cle	vesi*cle* (small blister)	(**VES**-ee-kal)
-ule	mole*cule* (small bit of matter)	(**MALL**-ah-cule)
-ia	anesthes*ia* (without feeling) dement*ia* (loss of 'de-' intellectual function/ from L. mentis: mind)	(**an**-es-**THEE**-zee-ah) (de-**MEN**-she-ah)
-ible, -ile	revers*ible* (change to or fro)	(re-**VERSE**-able)
-id	cusp*id* (cusp shape)	(**CUSS**-pid)
-ion	occlus*ion* (bite)	(oh-**CLUE**-shun)
-ism	brux*ism* (tooth grinding)	(**BRUCKS**-ism)
-itis	arthr*itis* (joint inflammation)	(ar-**THRI**-tis)
-ity	acid*ity* (acid)	(ah-**SID**-a-tee)
-ium	bacter*ium* (germ)	(back-**TIER**-ee-um)
-olus	alve*olus* (air sac)	(al-**VEE**-oh-lus)
-oma	lip*oma* (fat tumor)	(la-**POE**-mah)

-pathy	myo*pathy* (muscle disease)	(**MY**-oh-path-ee)
-sion	inci*sion* (surgical cut)	(in-**SIZH**-un)
-sis	thrombo*sis* (having a blood clot 'thrombus' in a vessel)	(throm-**BO**-sis)
-tic	necro*tic* (dead tissue)	(neh-**KRAH**-tic)
-tion	mastica*tion* (chewing)	(mass-tah-**KAY**-shun)
-y	slurr*y* (plaster water mix) aton*y* (lack 'a-' of muscle tone)	(**SLUR**-ee) (**AT**-o-ne)

Exercise 8

Insert the correct suffix to complete the root element.

1) condition of being acid = acid_____
2) surgical cut = inci_____
3) term for a germ = bacter___
4) fatty tumor = lip _____
5) act of chewing = mastica__
6) dead tissue = necro____
7) muscle damage disease = myo_____
8) small bit of matter = a mole___
9) tooth grinding = brux_____
10) air sac = alve_____

3. Suffixes denoting Agent or Person concerned

Some suffixes are added to the root element to indicate an agent or a person concerned with or trained in that specialty.

Suffix	Agent or Person
-ee	train*ee*, employ*ee,* leas*ee*
-ent	pati*ent*, recipi*ent,* resid*ent*
-eon	surg*eon*
-er	subscrib*er*, examin*er*, practition*er*
-ician	phys*ician*
-ist	dent*ist,* orthodont*ist*
-or	doct*or,* don*or*

4. Suffixes expressing Medical Terms, Processes, Uses

Some suffixes are added to root elements to show processes, uses, or healing. When analyzing a long dental word, starting at the suffix may indicate something happening to the root element, such as *ectomy* (surgical removal) or *trophy* (development). Other suffixes are added to indicate pain (*algia*) or bleeding (*rrhage*) and so on.

Suffix	Meaning	Sample Words
-algia	pain	odont*algia*, neural*gia*, my*algia*
-ate, -ize	use/action	vaccin*ate*, lux*ate*, palp*ate*, visual*ize*
-cide	kill	germi*cide*, homi*cide*
-cyte	cell	leuko*cyte*, osteo*cyte*
-ectomy	surgical removal	apico*ectomy*, append*ectomy*
-gnosis	knowledge	pro*gnosis*, dia*gnosis*
-ology	study of	histo*logy*, bio*logy*
-oma	tumor	carcino*ma*
-opsy	view	bio*psy*, auto*psy*
-phobia	dread fear	claustа*phobia*
-plasty	surgical repair	gingivo*plasty*
-plegia	paralysis	para*plegia*
-rrhea	discharge	hemmo*rrhea*, sialo*rrhea*
-scope	instrument	micro*scope* (micro), laryngo*scope* (larynx)
-tomy	incision	myo*tomy* (muscle)
-trophy	development	osteo*trophy* (bone development)

Exercise 9

Examine the boldfaced words in each sentence, and circle the suffix denoting a medical procedure, use, or condition of the root element. Then write the meaning of the word.

1) A **gingivoplasty** may be the correct treatment for an infected third molar area.
2) The patient's health history included drugs for her **fibromyalgia** condition.
3) The assistant prepares the **germicide** according to the manufacturer's instructions.
4) A **stethoscope** is used to determine blood flow sounds in a blood pressure examination.
5) Tissue **hemorrhea** may be an indicator of a serious blood disease.
6) The dentist will **cauterize** the patient's gingiva during the surgical procedure.
7) Jimmy will need a **frenectomy** before the central incisors can be moved into the area.
8) The patient was referred to an oral surgeon for the **apicoectomy**.
9) To avoid bone and tooth damage, the dentist will **rotate** the tooth before removal.
10) Some patients claim to suffer **claustrophobia** when visiting the dental office.
11) A complete dental exam includes inspection for oral **carcinoma** symptoms.
12) The patient was anxious to hear a good **prognosis** from the dentist.
13) The assistant prepared the **biopsy** slide for shipment to the laboratory.
14) An infection could be the cause of an elevated **leukocyte** count.
15) **Histology** is the study of microscopic structure of tissue.

5. Plurals

Because much of the medical terminology originates from Latin and Greek, the rules for changing terms from singular to plural are predetermined by the conventions of those languages. Occasionally, we find English plural terms and, whenever possible, encourage the use of these endings. The standard method to understand plural forms of words is to learn the basic rules for

changing word endings, bearing in mind that a few terms will not conform to these rules. Look terms up in a dictionary or reference book to verify spelling on any terms in question.

Guideline for Plural Forms			
Word Endings	**Change To**	**Singular**	**Plural**
a	*ae* (add *e* to end)	gingiva	gingivae
ex, ix	*ices* (drop *x*, add *ices*)	apex	apices
ax	*aces* (drop *x,* add *aces*)	thorax	thoraces
en	*ina* (change *en* to *ina*)	lumen	lumina
itis	*ides* (drop *s*, add *des*)	pulpitis	pulpitides
is	*es* (change *is* to *es*)	cementosis	cementoses
nx	*nges* (change *nx* to *nges*)	larynx	larynges
on	*a* (change *on* to *a*)	ganglion	ganglia
ma	*mata* (add *ta* to the end) *mas* (add *s* to the end)	dentinoma	dentinomata dentinomas
um	*a* (change *um* to *a*)	frenum	frena
us	*i* (change *us* to *i*)	sulcus	sulci
y	*ies* (drop *y*, add *ies*)	biopsy	biopsies

Exercise 10

Provide the plural form for each singular word listed here:

1. matrix	2. mamelon	3. frenum	4. radius	5. sulcus
6. iris	7. axillary	8. diagnosis	9. gingiva	10. stoma

REMEMBER…

1. **Root:** The foundation of the term.
2. **Prefix:** The word beginning.
3. **Suffix:** The word ending.
4. **Combining vowel:** A vowel that links the root word to the suffix or to other root words.
5. **Combining form:** A combination of the root word(s) and the combining vowel.

➢ The rules for building medical words from these elements are:

1. A prefix is always placed at the beginning of the word.
2. A suffix is always placed at the end of the word.
3. When more than one root word is used, it is a compound word and requires the use of a combining vowel to separate the words, even if the root word begins with a vowel:

   Osteoarthritis

   Root 1: Oste/o = Bone

Root 2: Arthr/o = Joint

Suffix: -itis = Inflammation

Combining Vowel: "o" used between Oste- and Arthr-

Definition: Inflammation of the bones and joints.

Combining vowel "o" is retained for ease of pronunciation.

4. When defining medical terms, begin with the suffix and read backward:

   Cardiomegaly

   Suffix: -megaly = Enlargement

   Root Word: Cardio = Heart

   Definition: Enlargement of the heart.

5. If the word also contains a prefix, define the suffix first, prefix second, and root word(s) last:

   Tachycardia

   Suffix: -ia = Condition

   Prefix: Tachy- = Fast

   Root Word: Card = Heart

   Definition: A condition of a fast heartbeat.

6. When using compound words that relate to parts of the body, anatomic position determines which root word comes first:

   Gastroenteritis

   Root 1: Gastr/o = Stomach

   Root 2: Enter/o = Intestine

   Suffix: -itis = Inflammation

   Definition: Inflammation of the stomach and intestines.

   The stomach is anatomically above (superior to) the intestines, so gastr- comes first.

University of Anbar

College of Dentistry

Year: First

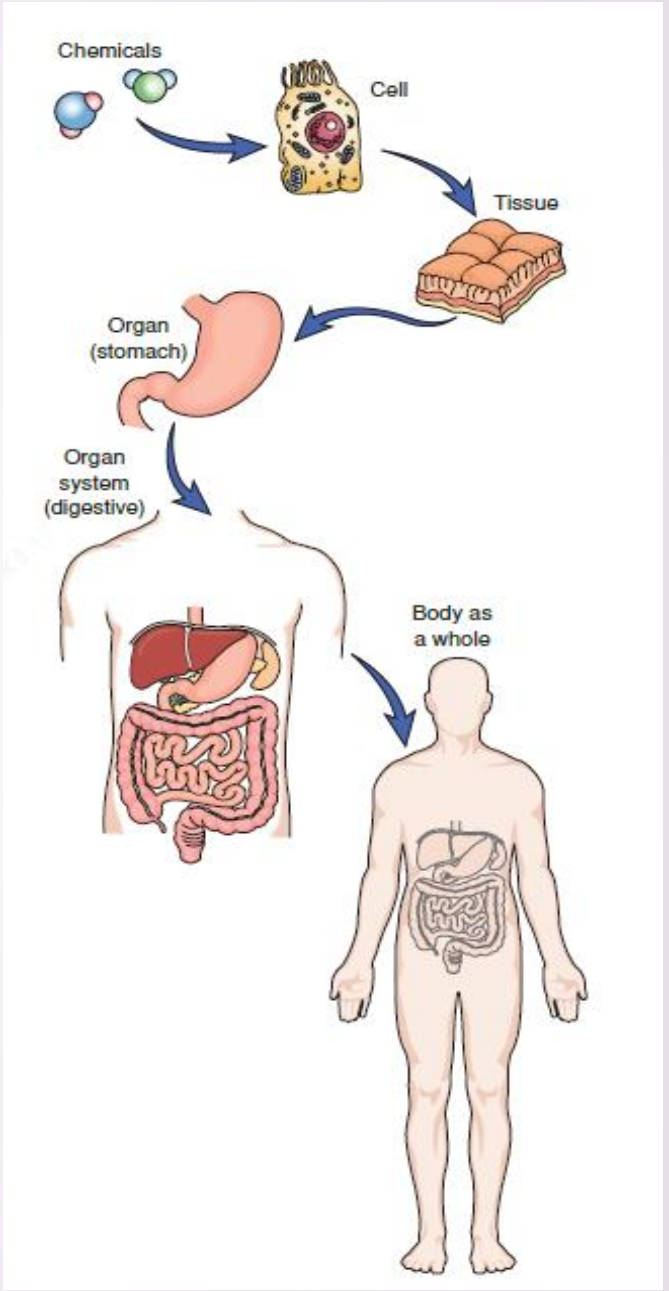
Course: Terminology

Asst. Inst. Noor H. Aljanaby

Terminology
Body Structure

Body Structure

- All organisms are built from simple to more complex levels.
- **Chemicals** form the materials that make up **cells.**
- **Cells** are the body's basic structural and functional units.
- Groups of cells working together make up **tissues.**
- **Tissues** in turn make up the **organs**, which have specialized functions.
- **Organs** become components of the various **systems.**
- Systems together comprise the whole **organism**.



Cells

- The **cell** is the **basic unit** of living organisms.
- **Cells** accomplish all the activities and produce all the components of the body.
- **Cells** vary in **size, shape**, and **function**.
- **Cells** need food, water, and oxygen to live and function.
- **Cells** contain three basic structures:
  - **Cell Membrane**: outer covering of the cell.
  - **Nucleus**: central portion of each cell responsible for directing cell activities.
  - **Cytoplasm**: substance surrounding the nucleus and is responsible for movement of substances.

Tissues

- Groups of cells that work together to perform the same task are called **tissues**.

- **Types of Tissues:**

Cells are organized into four basic types of tissues that perform specific functions:

- **Epithelial tissue**
- **Connective tissue**
- **Muscle tissue**
- **Nervous tissue**

Epithelial Tissue

- It covers and protects body structures and lines organs, vessels, and cavities.
- **Simple epithelium**, composed of cells in a single layer, functions to absorb substances from one system to another, as in the respiratory and digestive tracts.
- **Stratified epithelium**, with cells in multiple layers, protects deeper tissues, as in the mouth and vagina. Most of the active cells in glands are epithelial cells.

Connective Tissue

- It supports and connects body structures.
- It contains fibers and other nonliving material between the cells.
- Included in this category are blood, adipose (fat) tissue, cartilage, and bone.

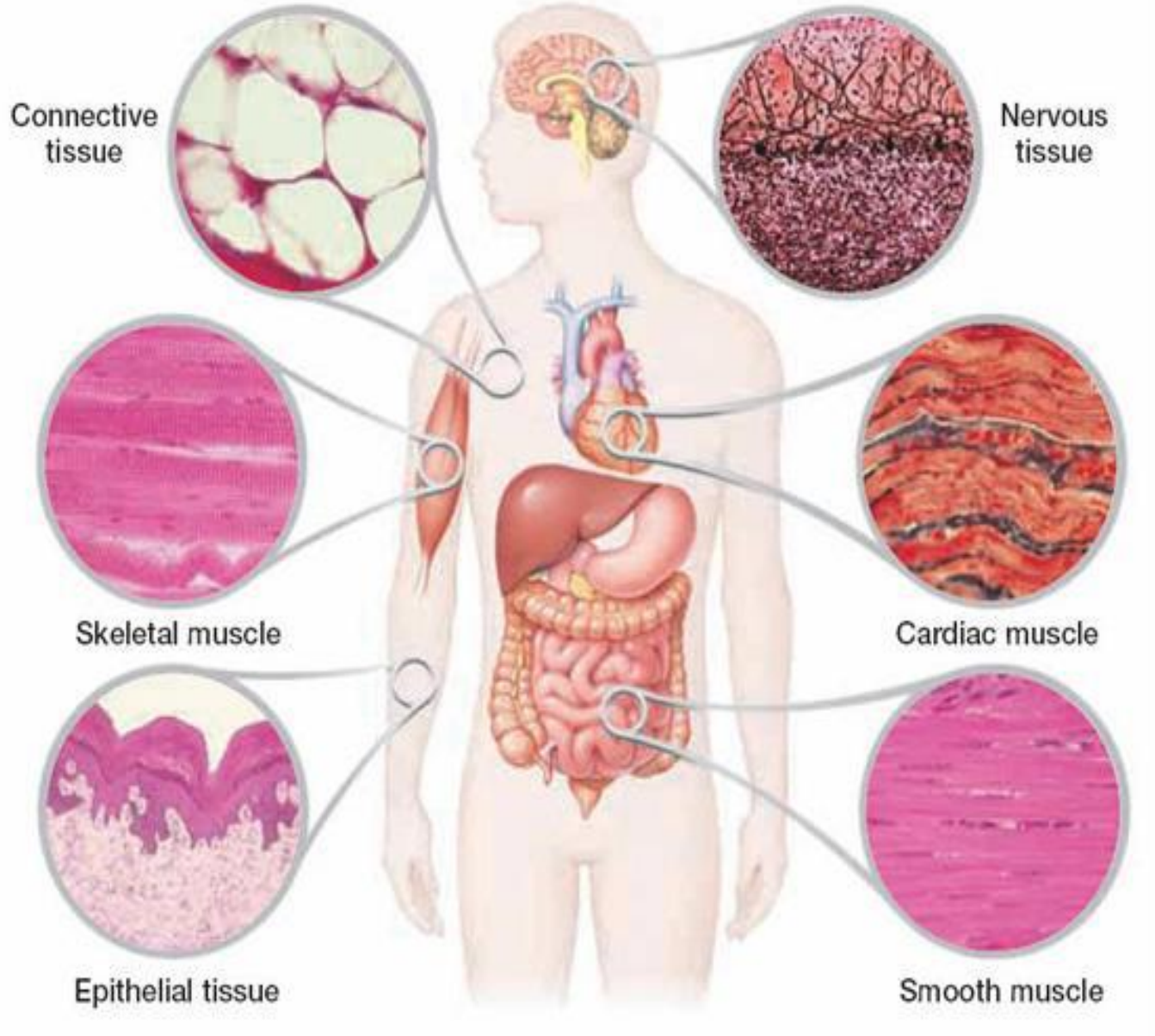
Muscle Tissue

Muscle tissue (root: my/o) contracts to produce movement. There are three types of muscle tissues:

- **Skeletal muscle** moves the skeleton. It has visible cross-bands, or striations, that are involved in contraction. Because it is under conscious control, it is also called voluntary muscle.
- **Cardiac muscle** forms the heart. It functions without conscious control and is described as involuntary.
- **Smooth or visceral muscle** forms the walls of the abdominal organs; it is also involuntary. The walls of ducts and blood vessels also are composed mainly of smooth muscle.

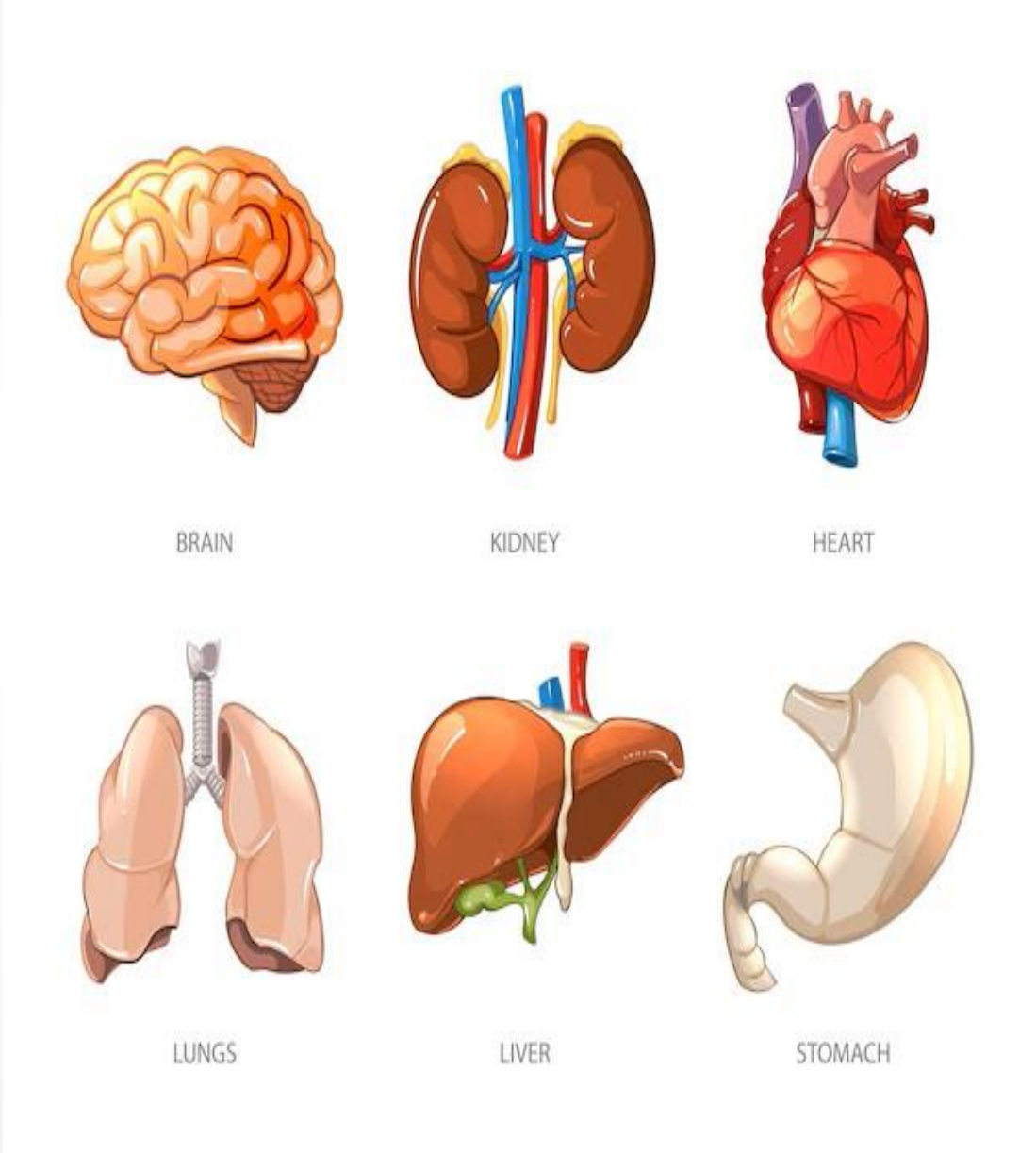
Nervous Tissue

- Nervous tissue (root: neur/o) makes up the brain, spinal cord, and nerves.
- It coordinates and controls body responses by the transmission of electrical impulses.
- The basic cell in nervous tissue is the neuron, or nerve cell.


Connective tissue
Nervous tissue
Skeletal muscle
Cardiac muscle
Epithelial tissue
Smooth muscle

Organs

- Groups of tissues that work together to perform a specific function are called **organs**.
- They are composed of at least two or more tissue types. For instance: kidney, brain, lungs, liver.



Systems of the Body

Groups of organs and accessory structures that work together to perform one of the body's major functions are called **systems.**

- **Integumentary system**, which includes the skin and its associated structures, such as hair, sweat glands, and oil glands. This system functions in protection and also helps to regulate body temperature.
- **Skeletal system**, which includes the bones and joints.
- **Muscular system**, which moves the skeleton and makes up the walls of internal organs. The muscular system and skeleton protect vital body parts.

Systems of the Body

- **Nervous system**, consisting of the brain, spinal cord, and nerves, and including the sensory system and special senses. This system receives and processes stimuli and directs responses.
- **Endocrine system**, consisting of individual glands that produce hormones.
- **Cardiovascular system (circulatory)** , consisting of the blood, heart, and blood vessels.
- **Lymphatic system**, organs, and vessels that aid circulation and help protect the body from foreign materials.

Systems of the Body

- **Respiratory system**, which obtains the oxygen needed for metabolism and eliminates carbon dioxide, a byproduct of metabolism.
- **Digestive system**, which takes in, breaks down, and absorbs nutrients and eliminates undigested waste.
- **Urinary system**, which eliminates soluble waste and balances the volume and composition of body fluids.
- The **male and female reproductive systems** concerned with production of offspring.

Word Parts Pertaining to Cells, Tissues, and Organs

Roots for Cells and Tissues			
Root	**Meaning**	**Example**	**Definition of Example**
morph/o	form	Polymorphous (pol-ē-MOR-fus)	having many forms
cyt/o, - cyte	cell	Cytologist (sī-TOL-ō-jist)	one who studies cells
		Cytogenesis (sī-tō-JEN-e-sis)	the formation (-genesis) of cells
nucle/o	nucleus	Nuclear (NŪ-klē-ar)	pertaining to a nucleus
kary/o	nucleus	Karyotype (KAR-ē-ō-tīp)	picture of a cell's chromosomes organized according to size
hist/o, histi/o	tissue	Histocompatibility (his-tō-kom-pat-i-BIL-i-tē)	tissue similarity that permits transplantation
fibr/o	fiber	Fibrosis (fī-BRŌ-sis)	abnormal formation of fibrous tissue
reticul/o	network	Reticulum (re-TIK-ū-lum)	a network
aden/o	gland	Adenoma (ad-e-NŌ-ma)	tumor (-oma) of a gland
papill/o	nipple	Papilla (pa-PIL-a)	projection that resembles a nipple
myx/o	mucus	Myxadenitis (miks-ad-e-NĪ-tis)	inflammation (-itis) of a mucus-secreting gland
muc/o	Mucus, mucous membrane	Mucorrhea (mū-kō-RĒ-a)	increased flow (-rhea) of mucus
somat/o, -some	Body, small body	Chromosome (KRŌ-mō-sōm)	small body that takes up color (dye) (chrom/o)

Word Parts Pertaining to Cells, Tissues, and Organs

Roots for Cell Activity			
Root	**Meaning**	**Example**	**Definition of Example**
blast/o, - blast	immature cell, productive cell, embryonic cell	Histioblast (HIS-tē-ō-blast)	a tissue-forming cell
gen	origin, formation	Karyogenesis (kar-ē-ō-JEN-e- sis)	formation of a nucleus
phag/o	eat, ingest	Autophagy (aw-TOF-a-jē)	self (auto)-destruction of a cell's organelles
phil	attract, absorb	Basophilic (bā-sō-FIL-ik)	attracting basic stain
plas	formation, molding, development	Hyperplasia (hī-per-PLĀ-zē-a)	overdevelopment of an organ or tissue
trop	act on, affect	Chronotropic (kron-o-TROP-ik)	affecting rate or timing (chron/o)
troph/o	feeding, growth, nourishment	Atrophy (A-trō-fē)	tissue wasting

Word Parts Pertaining to Cells, Tissues, and Organs

Suffixes for Body Chemistry			
Suffix	**Meaning**	**Example**	**Definition of Example**
-ase	enzyme	lipase (LĪ-pa-s)	enzyme that digests fat (lipid)
-ose	sugar	lactose (LAK-to-s)	milk sugar

Word Parts Pertaining to Cells, Tissues, and Organs

Roots for Body Chemistry			
Root	**Meaning**	**Example**	**Definition of Example**
hydr/o	water, fluid	Hydration (hī-DRĀ-shun)	addition of water, relative amount of water present
gluc/o	glucose	Glucogenesis (glū-kō-JEN-e-sis)	production of glucose
glyc/o	sugar, glucose	Normoglycemia (nor-mō-glī-SĒ- mē-a)	normal blood sugar level
sacchar/o	sugar	polysaccharide (pol-ē-SAK-a-rīd)	compound containing many simple sugars
amyl/o	starch	Amyloid (AM-i-loyd)	resembling starch
lip/o	lipid, fat	Lipophilic (lip-ō-FIL-ik)	attracting or absorbing lipids
adip/o	fat	Adiposuria (ad-i-pō-SŪR-ē-a)	presence of fat in the urine (ur/o)
steat/o	fatty	Steatorrhea (stē-a-tō-RĒ-a)	discharge (-rhea) of fatty stools
prote/o	protein	Protease (PRŌ-tē-ās)	enzyme that digests protein

Directional Terms

- In making diagnoses or prescribing treatments, health care providers use standard terms to refer to different areas of the body. These terms describe each anatomical position as a point of reference. The anatomical position always means the body is standing upright, facing forward, with upper limbs at the sides and with the palms facing forward.

- **Directional terms** are words used to describe the relative location of the body or its parts.

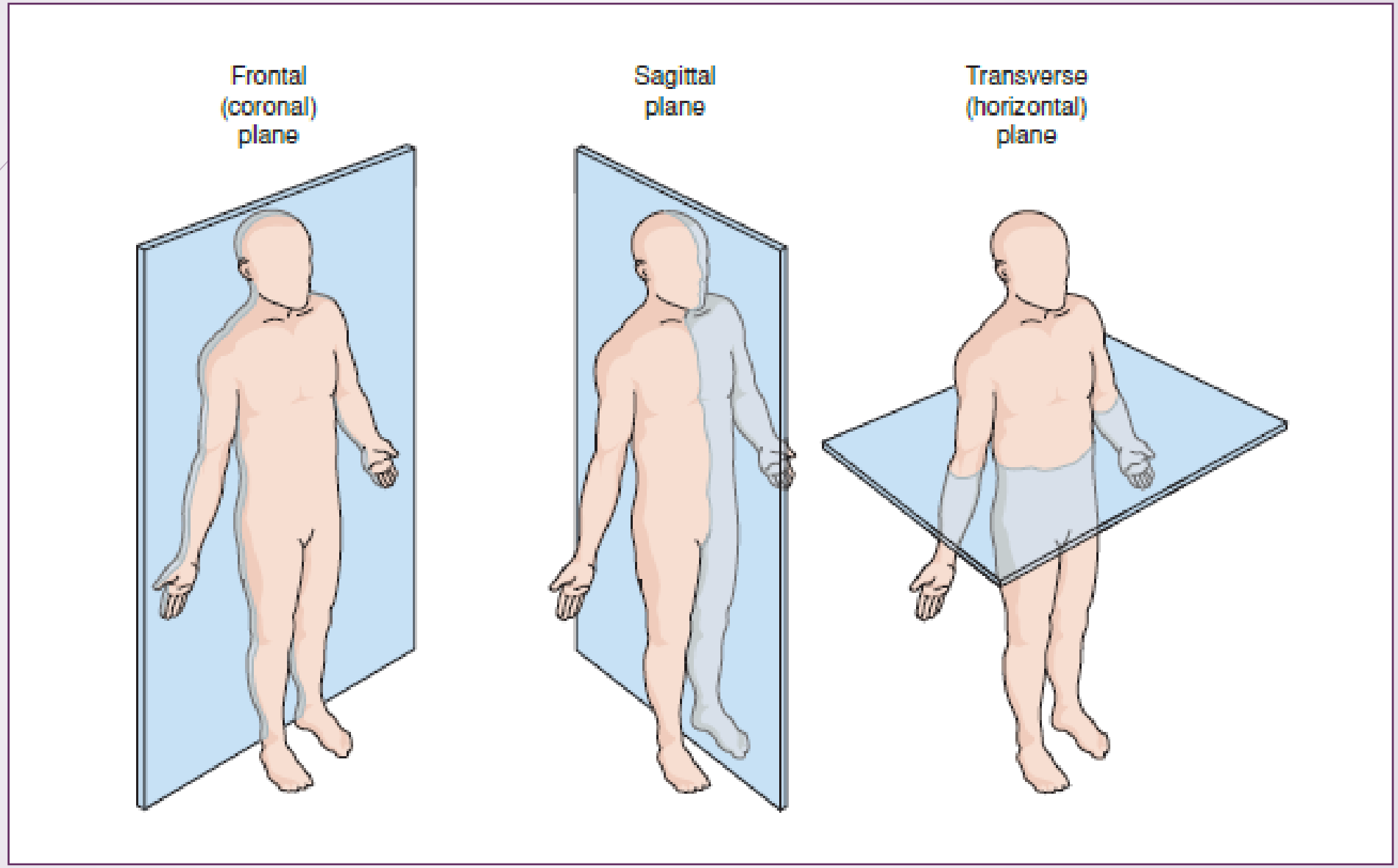
Root word	Term	Meaning
anter/o	anterior [ăn-TĒR-ē-o˘r]	near or toward the front side, **ventral**
poster/o	posterior [pos-TĒR-ē-o˘r]	near or toward the back side, behind, **dorsal**
ventr/o	ventral [VĔN-trăl]	near or toward the front side
dors/o	dorsal [DŌR-săl]	near or toward the back side
medi/o	medial [MĒ-dē-ăl]	middle
later/o	lateral [LĂT-ĕr-ăl]	side
super/o	superior [sū-PĒR-ē-ōr]	above
infer/o	inferior [ĭn-FĒR-ē-ōr]	below
proxim/o	proximal [PRŎK-sĭ-măl]	near or at point of attachment
dist/o	distal [DĬS-tăl]	far or away from point of attachment

Planes of the Body

- A **plane** is an imaginary flat field that is used as a point of reference for viewing three-dimensional objects. Anatomical planes divide the body into imaginary sections that are useful in describing the location of body parts relative to one another.

- The anatomical **planes of the body** are used in radiology when specific body location or direction is necessary.

Term	Meaning
Frontal [FRŬN-tăl**]** **Coronal [**KŌR-ŏ-năl**]**	is a ***vertical plane*** dividing the body into **anterior** (**front**) and **posterior** (**back**) portions.
Midsagittal [mĭd-SĂJ-ĭ-tăl**]**	is a ***vertical plane*** that divides the body into **right** and **left** halves at the body's midpoint.
Transverse [trănz-VĔRS**]** **(cross-sectional)**	is a ***horizontal (cross-section) plane***, parallel to the ground and through the waistline, dividing the body into **upper** and **lower** halves.
Sagittal [SĂJ-ĭ-tăl**]** **Lateral [**LĂT-ĕr-ăl**]**	is a ***vertical plane*** that passes from front to back, dividing the body into **right** and **left** sides.


Frontal (coronal) plane
Sagittal plane
Transverse (horizontal) plane

Roots for Regions of the Head and Trunk			
ROOT	**MEANING**	**EXAMPLE**	**DEFINITION OF EXAMPLE**
cephal/o	head	*microcephaly*	abnormal smallness of the head
		megacephaly	abnormal largeness of the head
cervic/o	neck	*cervicofacial*	pertaining to the neck and face
thorac/o	chest, thorax	*extrathoracic*	outside the thorax
abdomin/o	abdomen	*intra-abdominal*	within the abdomen
celi/o	abdomen	*celiac*	pertaining to the abdomen
lapar/o	abdominal wall	*laparoscope*	instrument for viewing the peritoneal cavity through the abdominal wall
lumb/o	lumbar region, lower back	*thoracolumbar*	pertaining to the chest and lumbar region
periton, peritone/o	peritoneum	*peritoneal*	pertaining to the peritoneum

University of Anbar

College of Dentistry

Year: First

Course: Terminology

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Terminology
Integumentary System

Integumentary System

- The skin and its accessory organs are called the **Integumentary System**. This bodycovering system protects against infection, dehydration, ultraviolet radiation, and injury.
- The **Integumentary System** (comes from the Latin word ***integumentum*** which means **covering** or **shelter**) includes:
  - the **skin** which covers the entire body
  - **hair**
  - **nails**
  - **sebaceous glands**
  - **sweat glands**

Functions of the Skin

- The skin is the largest organ of the body. The functions of the skin are:
  - **Protection**: Protect against injury.

    Protect against the sun UV(ultraviolet) rays.

    Prevent entry of harmful microorganisms.
  - **Thermoregulation (Temperature Regulator)**: Maintain the proper internal body temperature.
  - **Waste Elimination**: Excrete waste materials through perspiration.
  - **Sensory Organ**: Function as a sense organ for the body to feel pain, cold, heat, touch, and pressure.

Skin Layers Components

The skin is composed of two main layers: **epidermis** and **dermis**.

1. <u>Epidermis</u> (from ***epi***, meaning “upon or over” and ***derm***, meaning “skin”)

- It is the skin’s **outer** layer.
- It is composed of several layers of epithelial tissue.
- It contains no blood vessels or nerves in it.
- It receives its nourishment from the dermis.
- The epidermis contains in its deepest layers the **melanocytes**.
- The **melanocytes**: they are cells that can produce melanin.
- The **melanin**: is dark pigment that is present in the skin and other parts of the body. It gives the skin its color and help to protect against sunlight.

Skin Layers Components

2. <u>Dermis</u> (also called **corium**):

- The deeper layer of skin that lies below the epidermis.
- The dermis is attached through subcutaneous tissue to underlying structures such as muscle and bone.
- This layer supplies **nourishment** and **support** for the skin.
- It contains **blood vessels, nerves, hair follicles, sebaceous glands** and **sweat glands**.
- The **hair follicles** produce hair. **Hair** is composed of keratin.
- **Keratin**: is a hard protein that forms the hair and nails.

Associated Skin Structures

Specialized structures within the skin are part of the integumentary system:

- **Hypodermis**
  - Also called the **subcutaneous layer**.
  - The layer of tissue beneath the skin.
  - It serves as a supportive layer that connects the skin to the underlying muscles and bones.
  - It is composed primarily of: adipose tissue (fat), connective tissue, blood vessels and nerves.

Associated Skin Structures

- **Hair**: A threadlike keratinized outgrowth from the skin (root: **trich/o**).

- **Nails**: A nail is platelike keratinized outgrowth of the skin that covers the dorsal surface of the terminal phalanges (root: **onych/o**).

- **Glands:**
  - The **sweat (*sudoriferous*) glands** act mainly in temperature regulation by releasing a watery fluid that evaporates to cool the body. (root: **hidr/o**)
  - The **sebaceous glands** release an oily fluid, sebum, that lubricates the hair and skin and prevents drying. (root: **seb/o**)

Roots Pertaining to the Integumentary System

Roots Pertaining to the Skin and Associated Structures			
Root	**Meaning**	**Example**	**Definition of Example**
derm/o, dermat/o	skin	dermabrasion (derm-ah-BRA-zhun)	surgical procedure used to resurface the skin and remove imperfections
kerat/o	keratin, horny layer of the skin	keratinous (keh-RAT-ih-nus)	containing keratin; horny
melan/o	dark, black, melanin	melanosome (MEL-ah-no-some)	a small cellular body that produces melanin
hidr/o	sweat, perspiration	anhidrosis (an-hi-DRO-sis)	absence of sweating
seb/o	sebum, sebaceous gland	seborrhea (seb-or-E-ah)	excess flow of sebum (adjective: seborrheic)
trich/o	hair	trichomycosis (trik-o-mi-KO-sis)	fungal infection of the hair
onych/o	nail	onychia (o-NIK-e-ah)	inflammation of the nail and nail bed (Note: not an ***itis*** ending)

Some Terms Pertaining to the Integumentary System

- **Dermatology**: is the medical specialty that deals with the skin. It is the study of skin and skin diseases.
- **Dermatologist**: the physician who specializes in the diagnosis and treatment of skin disorders.
- **Dermatopathology**: is study of diseases of the skin.
- **Trichology**: study of the hair.
- **Hyperhidrosis**: excess production of sweat.
- **Dermatome**: instrument for cutting the skin.
- **Keratogenesis**: formation (genesis) of keratin.
- **Melanoma**: a tumor containing melanin.
- **Melanocyte**: a cell that produces melanin.

Skin Disorders

- **Skin lesion**: means any wound or injury to the skin.
- **Burns**: tissue injuries caused by contact with thermal, chemical, electrical, or radioactive agents.
- **Dermatitis:** inflammation of the skin. The skin becomes **erythematous** (means the skin becomes red) and **pruritic** (means itchy) and sometimes edema. (edema= swelling)
- **Epidermatitis:** inflammation of the epidermis layer only.
- **Dermatolysis (Dermolysis):** loosening or separation of the skin.
- **Onychomalacia:** softening of the nail(s).
- **Keratosis:** condition of thickened skin.

- **Abscess**: localized collection of pus at the site of an infection.
- **Acne**: inflammatory disease of the sebaceous glands and hair follicles of the skin.
- **Eczema:** it is type of chronic dermatitis; the skin becomes red and itchy.
- **Hidradenitis**: inflammation of a gland that produces sweat/ perspiration.
- **Onychomycosis:** a fungal infection of a nail.
- **Psoriasis:** inflammatory condition that affect the skin causing red circles and silvery scale.
- **Pyoderma**: presence of pus in the skin.
- **Scleroderma**: hardening of the skin.

Exercises

Identify and define the roots in the following words.

	Root	Meaning of Root
1. hypodermis (*hi-po-DER-mis*)	_____	_____
2. seborrheic (*seb-o-RE-ik*)	_____	_____
3. hypermelanosis (*hi-per-mel-ah-NO-sis*)	_____	_____
4. dyskeratosis (*dis-ker-ah-TO-sis*)	_____	_____
5. hypohidrosis (*hi-po-hi-DRO-sis*)	_____	_____
6. hypertrichosis (*hi-per-trih-KO-sis*)	_____	_____
7. eponychium (*ep-o-NIK-e-um*)	_____	_____

Fill in the blanks.

8. Dermatopathology (*der-mah-to-pah-THOL-o-je*) is study of diseases of the _____.
9. Keratolysis (*ker-ah-TOL-ih-sis*) is loosening of the skin's _____.
10. A melanocyte (*MEL-ah-no-site*) is a cell that produces _____.
11. Trichoid (*TRIK-oyd*) means resembling a(n) _____.
12. Onychomycosis (*on-ih-ko-mi-KO-sis*) is a fungal infection of a(n) _____.
13. Hidradenitis (*hi-drad-eh-NI-tis*) is inflammation of a gland that produces _____.
14. A hypodermic (*hi-po-DER-mik*) injection is given under the _____.

Write words for the following definitions.

15. loosening or separation of the skin _____
16. study of the skin and skin diseases _____
17. softening of a nail _____
18. excess production of sweat _____
19. study of the hair _____
20. instrument for cutting the skin _____
21. formation (-genesis) of keratin _____
22. a tumor containing melanin _____

Use *-derma* as a suffix meaning "skin" to write words for the following. Use the word part appendices if needed.

23. hardening of the skin _____
24. presence of pus in the skin _____

University of Anbar

College of Dentistry

Year: First

Course: Terminology

Asst. Inst. Noor H. Aljanaby

Terminology
Respiratory System

The Respiratory System

- The **respiratory system** consists of a series of tubes that transport air into and out of the lungs.
- Its function is to **supply** O_2 to the body cells and to **transport** CO_2 produced by the body cells into the atmosphere.
- The respiratory organs also have important functions for **normal speech**, **acid–base balance**, **hormonal regulation of blood pressure**, and **defense against foreign material**.
- The respiratory system also allows humans to **perceive odors** and to **filter** and **moisten** air.

The Respiratory System

Respiration involves the following processes:

- **Pulmonary ventilation** (breathing)
- **External respiration** (diffusion of O_2 and CO_2 between air in the lungs and the capillaries)
- **Internal respiration** (diffusion of CO_2 and O_2 between blood and tissue cells)
- **Cellular respiration** (use of O_2 by the body cells in production of energy and release of CO_2 and H_2O)

Structures of the Respiratory System

The **respiratory system** brings **oxygen** into the body for transportation to the cells. It also removes **carbon dioxide** and some water waste from the body. For descriptive purposes, the respiratory system is divided into **upper** and **lower** respiratory tracts.

- The **upper respiratory tract** consists of the nose, mouth, pharynx, epiglottis, larynx, and trachea.
- The **lower respiratory tract** consists of the bronchial tree and lungs. These structures are located within, and protected by, the **thoracic cavity** which is also known as the **rib cage**.

Structures of the Respiratory System

1. Nose (nostrils): The external portion of the respiratory tract that **filters** small particles, **warms** and **humidifies** incoming air, and **receives** odors. It is the primary organ for the sense of smell.

2. Pharynx (throat): A five-inch muscular tube that extends from the base of the skull to the esophagus. It is the **airway** that connects the mouth and nose to the larynx. Although it is a single organ, it is divided into three sections—the **nasopharynx**, **oropharynx**, and **laryngopharynx**.

Structures of the respiratory system

3. Larynx (voice box): This **connects** the pharynx with the trachea. It is a short tube shaped like a **triangular box** and is supported by **nine cartilages**, three paired and three unpaired. It contains the **vocal cords** and **supporting tissue** that make vocal sounds possible.

4. Trachea (windpipe): A four-inch-long tube, the trachea extends into the chest and serves as a **passageway** for air into the bronchi. It lies in front of the esophagus. It is kept permanently open by 16–20 C-shaped cartilaginous rings.

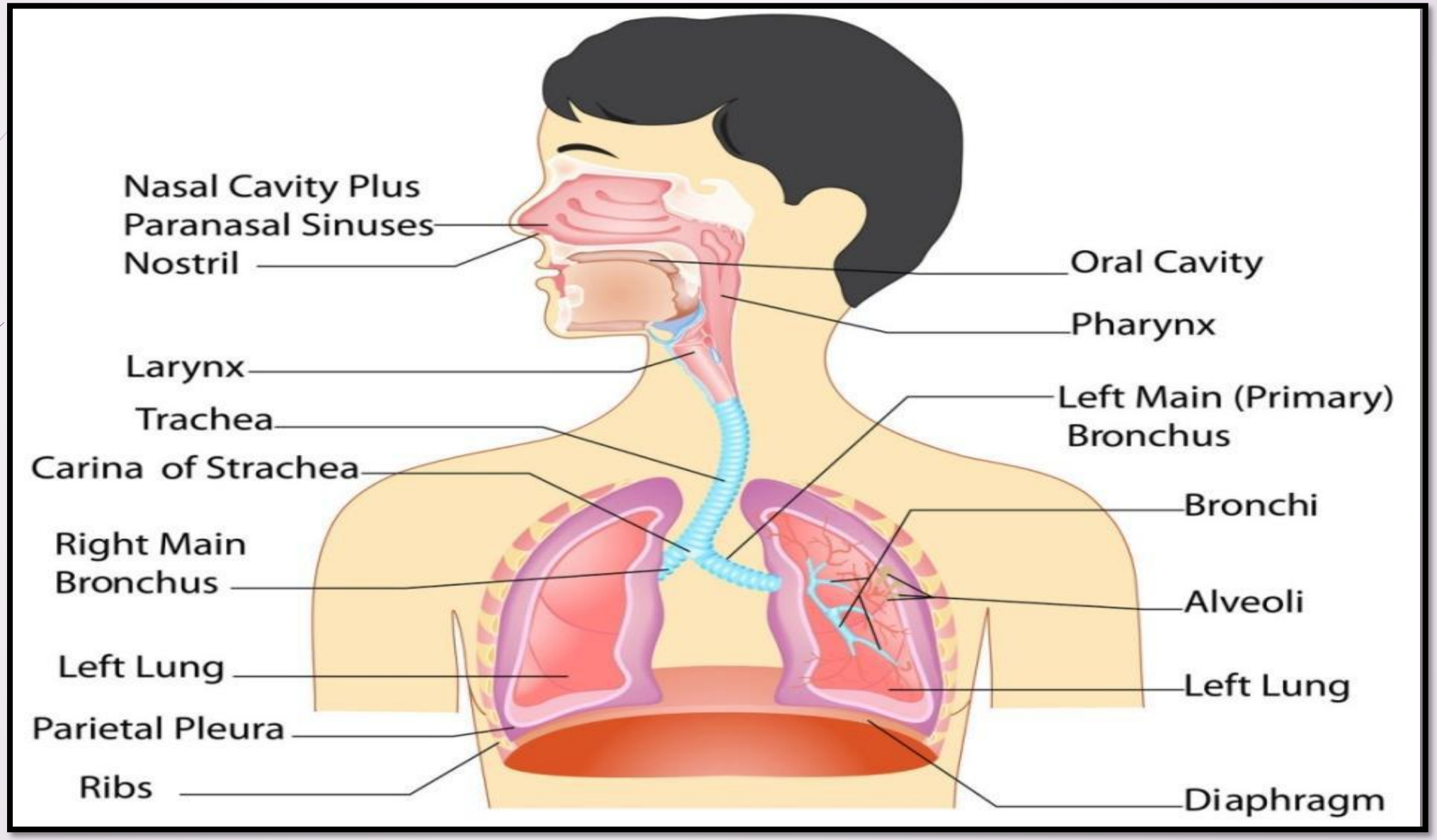
5. Bronchi: The trachea branches into two tubes called the **bronchi** (the bronchial tree). Each bronchus enters a lung.

Structures of the respiratory system

6. Lungs:

- The lung is a **cone-shaped, spongy** respiratory organ contained within the thorax.
- The **right** lung is **larger** and divided into **three** lobes.
- The **left** lung, which is **smaller** to accommodate the heart, is divided into **two** lobes.
- They are covered by the **pleura** which is a **double membrane** consisting of two layers: the **parietal pleura** (the outer layer) and the **visceral pleura** (the inner layer).

Structures of the Respiratory System



Word Parts Pertaining to the Respiratory System

Suffixes for Respiration			
Suffix	**Meaning**	**Example**	**Definition of Example**
-pnea	breathing	dyspnea [disp-NE-ah]	shortness of breath; painful or difficult breathing
		apnea [AP-nē-a]	absence of breathing
-oxia*	level of oxygen	hypoxia [hī-POK-sē-a]	decreased amount of oxygen in the tissues
-capnia*	level of carbon dioxide	hypercapnia [hī-per-KAP-nē-a]	increased carbon dioxide in the tissues
-phonia	voice	aphonia [ah-FO-ne-ah]	loss of voice

* When referring to levels of oxygen and carbon dioxide in the **blood**, the suffix -**emia** is used, as in ***hypoxemia***, ***hypercapnemia***.

Word Parts Pertaining to the Respiratory System

Roots for Respiratory Passageways			
Root	**Meaning**	**Example**	**Definition of Example**
nas/o	nose	intranasal [in-tra-NĀ—zal]	within the nose
rhin/o	nose	rhinoplasty [RĪ-nō-plas-tē]	plastic repair of the nose
pharyng/o*	pharynx	Pharyngeal [fa-RIN-jē-al]	pertaining to the pharynx
laryng/o	larynx	laryngospasm [la-RIN-gō-spazm]	spasm (sudden contraction) of the larynx
trache/o	trachea	tracheotome [TRĀ-kē-ō-tōm]	instrument used to incise the trachea
bronch/o, bronch/i	bronchus	bronchogenic [brong-kō-GEN-ik]	originating in a bronchus
bronchiol	bronchiole	bronchiolectasis [brong-kē-ō-LEK-ta-sis]	dilatation of the bronchioles
*An **e** is added to the root before the adjective ending ***-al***.			

Word Parts Pertaining to the Respiratory System

Roots for the Lungs and Breathing			
Root	**Meaning**	**Example**	**Definition of Example**
phren/o	diaphragm	phrenic [FREN-ik]	pertaining to the diaphragm
phrenic/o	phrenic nerve	phrenicectomy [fren-i-SEK-tō-mē]	partial excision of the phrenic nerve
pleur/o	pleura	pleurodesis [plū-ROD-e-sis]	fusion of the pleura
pulm/o, pulmon/o	lung	extrapulmonary [EKS-tra-pul-mō-ner-ē]	outside the lungs
pneumon/o	lung	pneumonitis [nū-mō-NĪ-tis]	inflammation of the lung; pneumonia
pneum/o, pneumat/o	air, gas; also respiration, lung	pneumothorax [nū-mō-THÕ-raks]	presence of air in the thorax (pleural space)
spir/o	breathing	spirometer [spī-ROM-e-ter]	instrument for measuring breathing volumes

Symptoms, Conditions and Disorders

Key terms	Definition
dyspnea [disp-NĒ-a]	Difficult or labored breathing, sometimes with pain; “air hunger”
anoxia [an-OK-sē-a]	Lack or absence of oxygen in the tissues; often used incorrectly to mean hypoxia
asphyxia [as-FIK-sē-a]	Condition caused by inadequate intake of oxygen; suffocation (literally “lack of pulse”)
aspiration [as-pi-RĀ-shun]	The accidental inhalation of food or other foreign material into the lungs. Also means the withdrawal of fluid from a cavity by suction
asthma [AZ-ma]	A disease characterized by dyspnea and wheezing caused by spasm of the bronchial tubes or swelling of their mucous membranes
cyanosis [sī-a-NŌ-sis]	Bluish discoloration of the skin caused by lack of oxygen in the blood (adjective: cyanotic)
sleep apnea [AP-nē-a]	Intermittent periods of breathing cessation during sleep. Central sleep apnea arises from failure of the brain stem to stimulate breathing. Obstructive sleep apnea results from airway obstruction during deep sleep, as from obesity or enlarged tonsils

Symptoms, Conditions and Disorders

Key terms	Definition
empyema [em-pī-Ē-ma]	Accumulation of pus in a body cavity, especially the pleural space; pyothorax
hemothorax [hē-mō-THOR-aks]	Presence of blood in the pleural space
hydrothorax [hī-drō-THOR-aks]	Presence of fluid in the pleural space
hyperventilation [hī-per-ven-ti-LĀ-shun]	Increased rate and depth of breathing; increase in the amount of air entering the alveoli
hypoventilation [hī-pō-ven-ti-LĀ-shun]	Decreased rate and depth of breathing; decrease in the amount of air entering the alveoli
influenza [in-flū-EN-za]	An acute, contagious respiratory infection causing fever, chills, headache, and muscle pain; “flu”
pneumonia [nū-MŌ-nē-a]	Inflammation of the lungs generally caused by infection. It may involve the bronchioles and alveoli (bronchopneumonia) or one or more lobes of the lung (lobar pneumonia)

More Terms Pertaining to the Respiratory System

- **Bronchotomy**: incision into a bronchus.
- **Bronchoscopy**: visual examination of the bronchi.
- **Laryngology**: study of the larynx and its abnormalities.
- **Laryngoplasty**: surgical repair of the larynx.
- **Pharyngotomy**: surgical incision into the pharynx.
- **Phrenoplegia**: paralysis of the diaphragm.
- **Pneumolithiasis**: the presence or formation of calculi in the lungs.
- **Pulmonologist**: a specialist who treats diseases and disorders of the lungs.
- **Rhinalgia**: pain in the nose.
- **Rhinitis**: inflammation of the inner lining of the nasal cavity.
- **Rhinodynia**: rhinalgia; pain in the nose.
- **Rhinorrhea**: discharge from the rhinal mucous membrane.
- **Tracheomegaly**: abnormal dilation of the trachea
- **Tracheorrhagia**: hemorrhage of the trachea.

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Terminology
Muscular System

Main Functions of the Muscular System

- The muscular system is made up of **over 600** muscles.
- The muscular system **enables movement**, **maintains posture**, and **generates heat**.
- It is **controlled** by the **nervous** system and **interacts** with the **skeletal** system.
- The primary purpose for the muscular system is to **provide movement** for the body. The muscles receive their **ability to move** the body through the **nervous system**.
- It is composed of three main types of muscle: **skeletal**, **cardiac**, and **smooth**.

Major Properties of the Muscular System

- **Excitable or irritable:** This means that they are capable of **receiving** stimulation and **responding** to **stimulation** from the nerves.
- **Contractible:** After receiving stimulation, they are **capable of contracting, or shortening**.
- **Extensible:** A muscle can be **stretched without damage** by the application of force.
- **Elasticity:** A muscle is able to **return** to its original resting shape and length **after** being **extended** or **contracted**.
- **Adaptability:** The muscular system is **adaptable** in that it can be **changed** in response to how it is used. For example, a muscle will enlarge or undergo **hypertrophy** (enlarging the muscle) with increased work; on the other hand, it can go into **atrophy** or waste away if deprived of work.

Types of Muscles

There are three types of muscle tissue in the body and each of these move either voluntary or involuntary.

1. Cardiac muscle (myocardium) is **involuntary** muscle which means it operates without any conscious control. These **muscles** form the **walls** of the **heart** and **contracts** to **circulate** the **blood**.

2. Smooth (visceral) muscle makes up the **walls of the hollow organs**, such as the stomach, intestines, and uterus, and the **walls of ducts**, such as the blood vessels and bronchioles. Smooth muscle operates **involuntarily** and is responsible for **peristalsis**, the wave-like movements that propel materials through the systems.

Types of Muscles

3. Skeletal muscles: these are typically what we think of when talking about muscles.

These muscles **attach to the skeleton** and **provide** the skeleton with the **ability to move**.

They are classified as **voluntary;** this is because we have to make a conscious effort or decision to make them move.

It also **maintains posture** and **generates a large proportion of body heat**.

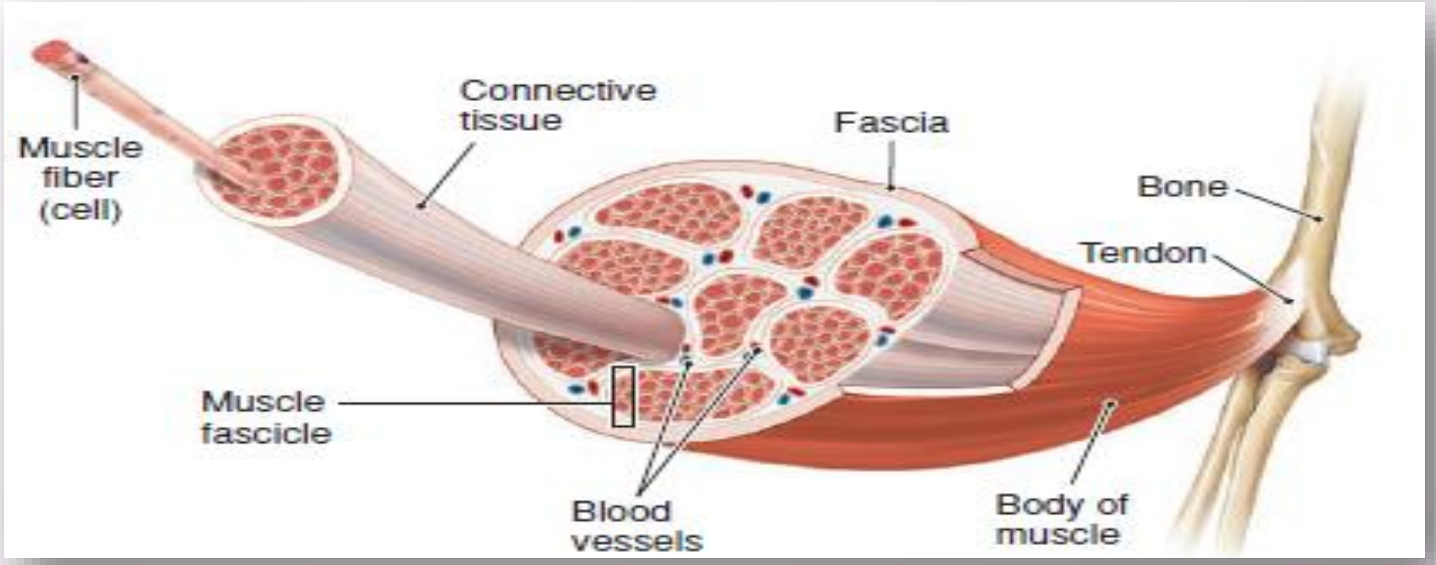
All of these voluntary muscles together make up the muscular system.

Structure of Skeletal Muscle

1. **Muscle Fibers = Muscle Cells**
    1. Muscle cells are called **muscle fibers** because they are long, thin, and thread-like.
    2. These fibers are the functional units of muscle tissue. They contract to generate movement
2. **Fascicles = Bundles of Muscle Fibers**
    1. Muscle fibers are grouped together in bundles called **fascicles**.
3. **Fascia = Connective Tissue**
    1. Each fascicle is wrapped in a layer of **connective tissue**, which provides structure and support.
    2. The entire muscle is also covered by a **sheath of connective tissue**, called **fascia**, which helps protect and organize the muscle.
4. **Tendons = Merged Connective Tissues**
    1. The connective tissues surrounding muscle fibers and fascicles eventually come together at the ends of the muscle.
    2. These merged tissues form **tendons**, which attach the muscle to bones and allow movement when the muscle contracts.

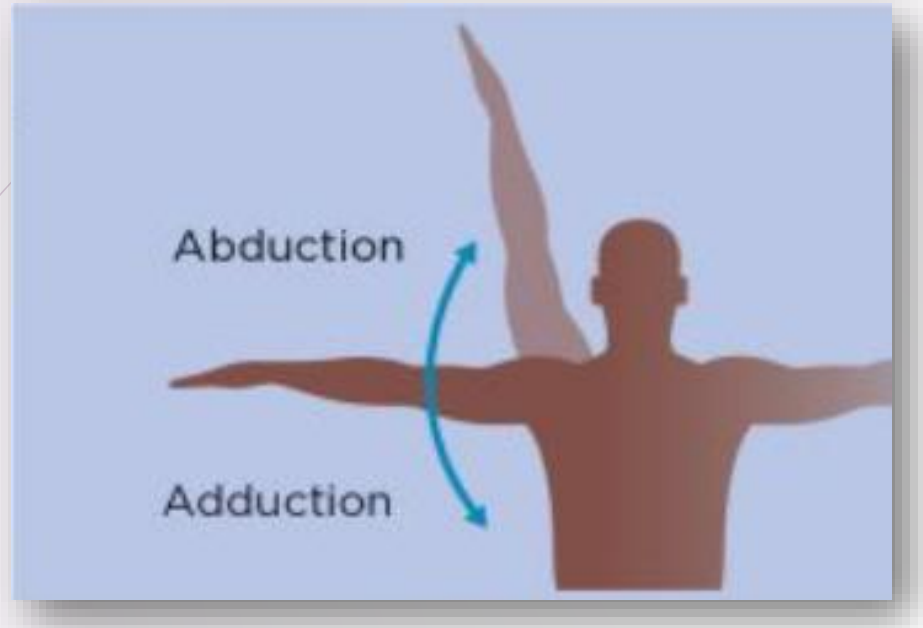
Structure of Skeletal Muscle

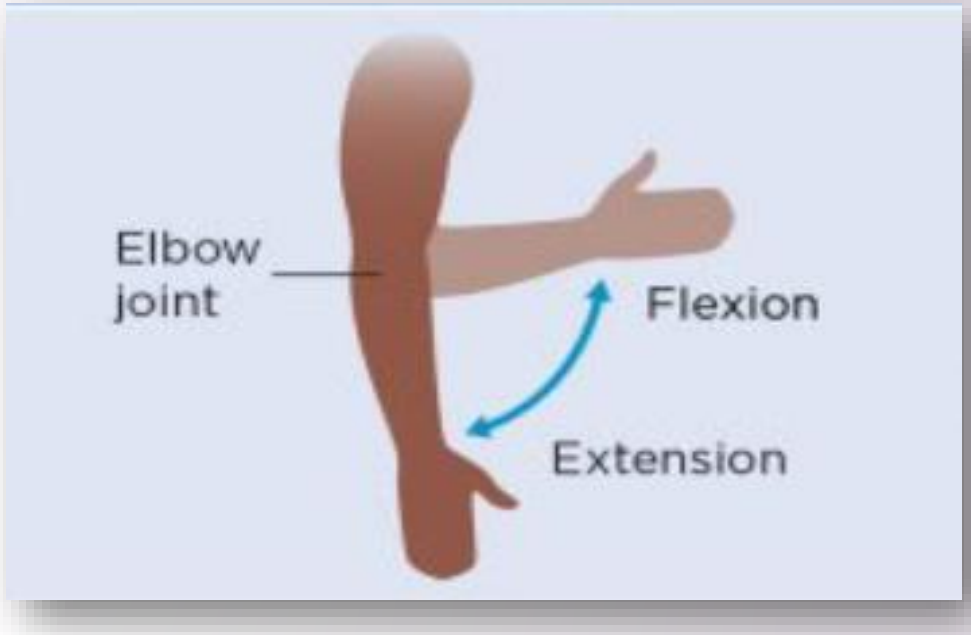
- **Key Takeaways**
  - Muscles are made of **muscle fibers** (cells).
  - **Fascicles**: Bundles of muscle fibers wrapped in **connective tissue**.
  - The **fascia** (a connective tissue layer) covers the entire muscle.
  - The connective tissues merge to form **tendons**, which attach/connect the muscle to bones.
  - **Tendons** and **fascia** work together with the **muscles**, which create the **muscular system** necessary for movement.

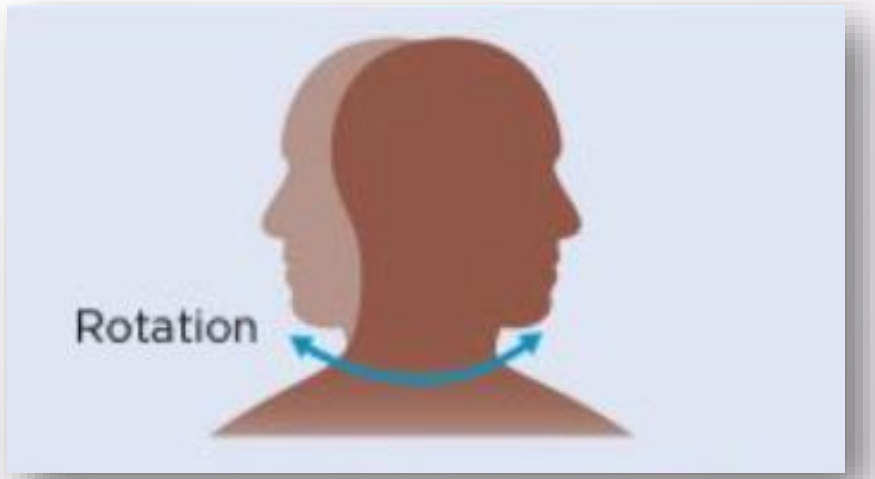


5 Types of Muscle Movements

1. **Abduction**: Moving a body part **away from** the **mid-line** of the **body**. (e.g., outward movement of the arm at the shoulder)
2. **Adduction:** Moving a body part **toward** the **mid-line** of the **body**. (e.g., return of lifted arm to the body)
3. **Flexion**: Closing the angle at a joint; **bending** a joint to **decrease** the **angle** between two bones or two body parts. (e.g., bending at the knee or elbow)
4. **Extension**: Opening the angle at a joint; **straightening** and **extending** of the joint to **increase the angle** between two bones or body parts. (e.g., straightening at the knee or elbow)
5. **Rotation**: It involves moving a body part around an **axis**. (e.g., turning the head).


Abduction
Adduction


Elbow joint
Flexion
Extension


Rotation

Muscle Naming

A muscle can be named by its:

1. **Location**: Near a bone or body region (e.g., temporalis, brachialis).
2. **Direction of Fibers**: Straight, diagonal, or horizontal (e.g., rectus, oblique, transverse).
3. **Size**: Large, small, long, or short (e.g., maximus, minimus, longus, brevis).
4. **Shape**: Triangular, trapezoid, or saw-toothed (e.g., deltoid, trapezius, serratus).
5. **Number of Attachment points (Heads)**: Indicated by the suffix (***-ceps***): biceps, triceps, quadriceps.
6. **Action**: Indicated by adding the suffix (***-or***) to the root for the action: flexor, extensor, abductor, adductor. For example, a muscle that produces flexion at a joint is a *flexor*.

Roots Pertaining to Muscles

Root	Meaning	Example	Definition of Example
my/o	muscle	myositis [*mi-o-SI-tis*]	inflammation of muscle
		myoglobin [*mi-o-GLO-bin*]	a protein similar to hemoglobin that stores oxygen in muscle cells
muscul/o	muscle	musculature [*MUS-kyu-lah-chur*]	muscle arrangement in a part or the whole body
in/o	fiber	inotropic [*in-o-TROP-ik*]	acting on (muscle) fibers
fibr/o	fiber	fibromyalgia [*fi-bro-mi-AL-je-ah*]	a chronic pain syndrome affecting muscles and soft tissue.
fasci/o	fascia	fasciodesis [*fash-e-OD-eh-sis*]	binding (suture) of a fascia to a tendon or other fascia
sthen/o	strength	asthenia [*as-THE-ne-ah*]	weakness (prefix *a-* meaning “without”)
ten/o, tendin/o	tendon	tenostosis [*ten-os-TO-sis*]	ossification of a tendon
ton/o	tone	cardiotonic [*kar-de-o-TON-ik*]	having a strengthening action on the heart muscle
erg/o	work	ergonomics [*er-go-NOM-iks*]	study of the efficient use of energy during work
kin/o-, kine, kinesi/o, kinet/o	movement	kinesis [*ki-NE-sis*]	movement (adjective: *kinetic*)

Common Muscular Disorders, Symptoms and Conditions

- **Asterixis:** Rapid, jerky movements, especially in the hands, caused by intermittent loss of muscle tone.
- **Ataxia:** Lack of muscle coordination (from root ***tax/o*** meaning "*order, arrangement*") (adjective: ***ataxic***).
- **Athetosis:** A condition marked by slow, irregular, twisting movements, especially in the hands and fingers (adjective: ***athetotic***).
- **Atrophy:** A wasting away; a decrease in the size of a tissue or organ, such as muscular wasting from disuse.
- **Dermatomyositis**: A disease of unknown origin involving muscular inflammation as well as dermatitis and skin rashes.
- **Fibromyositis:** A nonspecific term for pain, tenderness, and stiffness in muscles and joints.
- **Fibrositis:** Inflammation of fibrous connective tissue, especially the muscle fasciae; marked by pain and stiffness.
- **Muscular Dystrophy (MD):** A genetic disorder leading to muscle weakness.

Common Muscular Disorders, Symptoms and Conditions

- **Myasthenia Gravis (MG):** A disease characterized by progressive muscular weakness; an autoimmune disease affecting the neuromuscular junction.
- **Polymyositis**: A disease of unknown cause involving muscular inflammation and weakness.
- **Rheumatism:** A general term for inflammation, soreness, and stiffness of muscles associated with joint pain (adjectives: ***rheumatic***, ***rheumatoid***).
- **Strain:** Overstretching or tearing of a muscle or tendon; injury to a muscle or tendon, often due to overuse or sudden force.
- **Sprain:** Injury to a ligament, typically caused by twisting or impact.
- **Spasm:** Sudden, involuntary muscle contraction, often due to fatigue, dehydration, or nerve issues.
- **Tendinitis:** Inflammation of a tendon, usually caused by injury or overuse; the shoulder, elbow, and hip are common sites; also spelled **tendonitis**.
- **Tenosynovitis:** Inflammation of a tendon and its sheath.

Diagnostic Procedures

- **Electromyography (EMG):** Study of the electrical activity of muscles during contraction.
- **MRI and CT Scans:** Provide imaging of muscle and soft tissue.
- **Muscle Biopsy:** A sample of muscle tissue is examined for disease.

Treatments and Therapies

- **Physical Therapy (PT):** Health profession concerned with physical rehabilitation and prevention of disability; exercise, massage, and other therapeutic methods that help to restore movement and strength.
- **Myoplasty**: Surgical repair of a muscle.
- **Anti-inflammatory Medications:** Reduce pain and swelling.
- **Surgery:** Repairs muscle or tendon damage when necessary.

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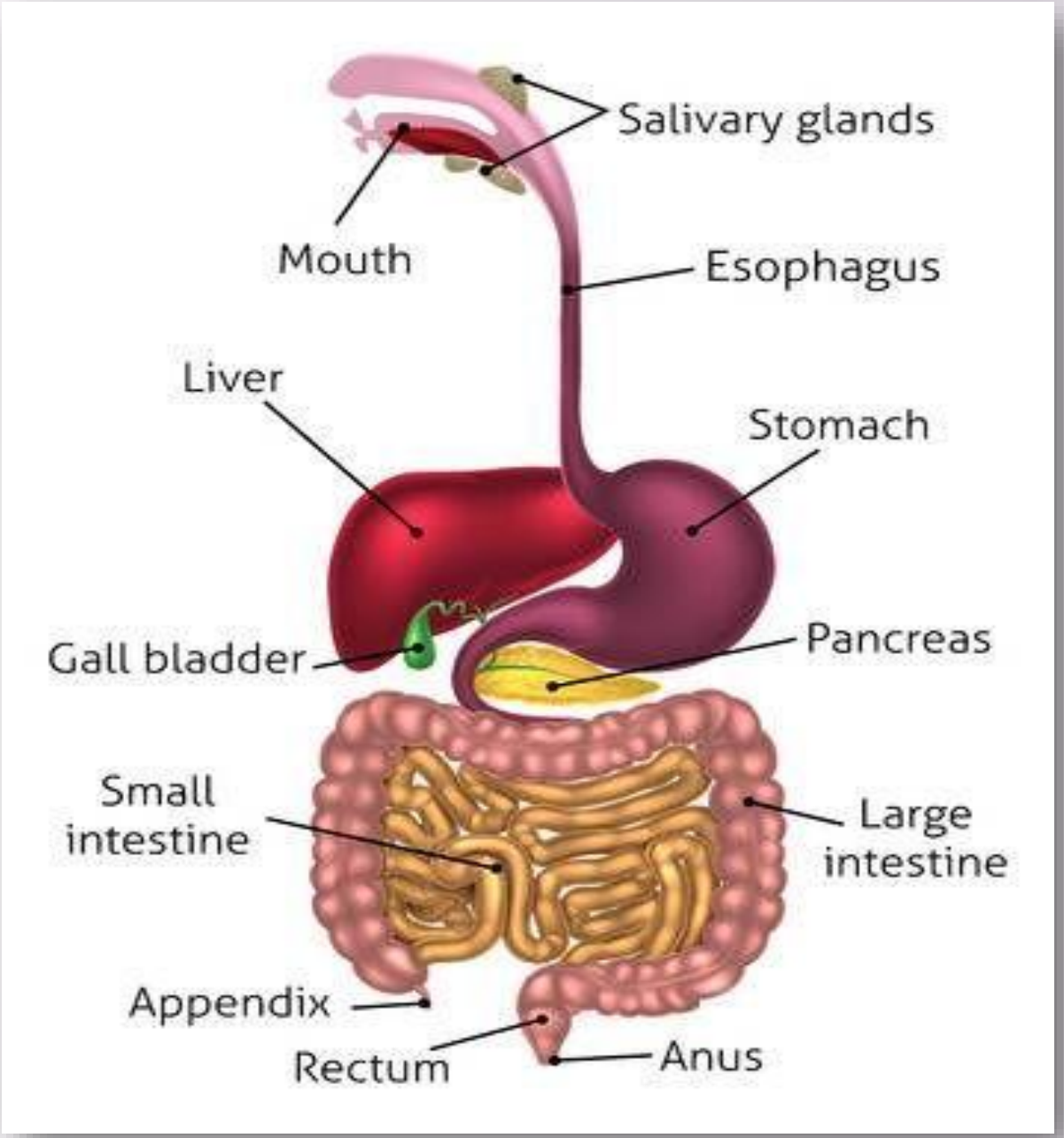
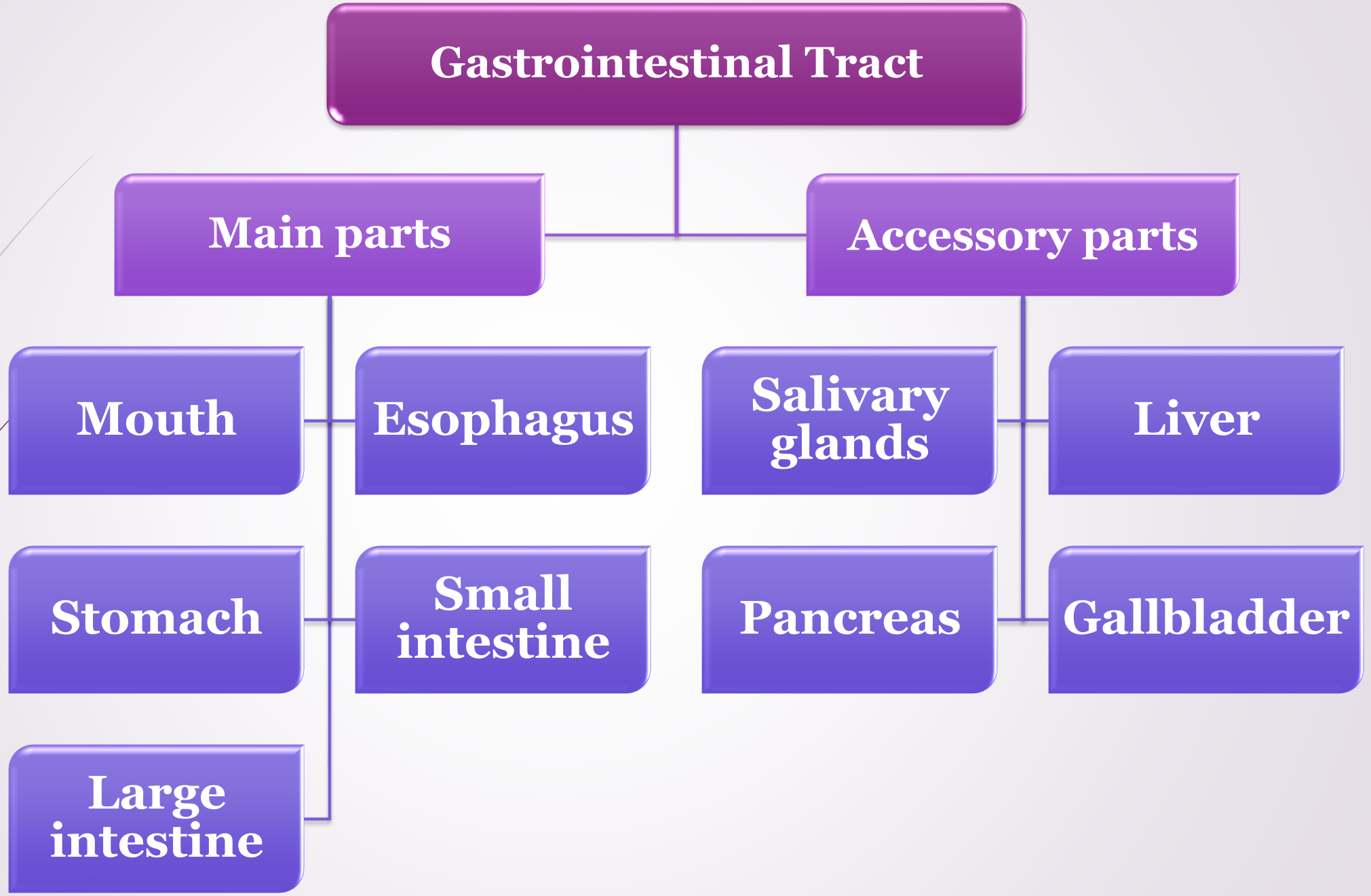
Terminology
Digestive System

The Digestive System

- The digestive system also called the **Gastrointestinal Tract (GIT)** or **Alimentary Tract**, contains the organs involved in the **ingestion** and **processing of food**.
- Its general description is that of a **long muscular tube** extending from **mouth** to **anus** and the **accessory organs**, which include the **salivary glands, liver, gallbladder,** and **pancreas.**

The Digestive System




Gastrointestinal Tract
Main parts
Accessory parts
Mouth
Esophagus
Stomach
Small intestine
Large intestine
Salivary glands
Liver
Pancreas
Gallbladder

Organs of the Digestive Tract

The digestive system begins with the throat and ends at the anus. This long tube has many parts and is connected to various accessory organs. Such parts and accessory organs are listed here.

- **Mouth:** Used to bite and chew food. Mixes food with saliva, which contains **salivary amylase**, an enzyme that begins the digestion of starch. Shapes food into small portions, which the tongue pushes into the pharynx.
- **Pharynx:** Swallows food by reflex action and moves it into the esophagus.
- **Esophagus:** Transports food from pharynx (throat) to stomach by **peristalsis**. Contains no digestive enzymes.

Organs of the Digestive Tract

- **Stomach:** Stores food; churns to mix food with water and digestive juices. Secretes protein-digesting **hydrochloric acid** (HCl) and the enzyme **pepsin**. The gastric juices initiate the digestion of protein and fat.
- **Small intestine:** Secretes enzymes. Receives secretions from the accessory organs (pancreas, liver), which digest and neutralize food. Site of most digestion and absorption of nutrients into the circulation. Peristalsis moves undigested residue to the large intestine.
- **Large intestine:** Forms, stores, and eliminates undigested waste material.

Functions of the Gastrointestinal System:

The main functions of the GIT system is to: break down the food, prepare it for absorption, and elimination of the waste substances.

By six major processes:

1. **Ingestion**: process of eating
2. **Propulsion**: swallowing and peristalsis.
3. **Mechanical digestion**: breaking food and mixing with saliva.
4. **Chemical digestion**: by enzymes.
5. **Absorption:** passage into the blood-lymph
6. **Defecation**: elimination of waste substances.

Roots Pertaining to the Digestive System

Roots for the Mouth			
Root	**Meaning**	**Example**	**Definition of example**
bucc/o	cheek	buccoversion [*buk-ko-VER-zhun*]	turning toward the cheek
dent/o, dent/i	tooth, teeth	edentulous [*e-DEN-tu-lus*]	without teeth
odont/o	tooth, teeth	periodontics [*per-e-o-DON-tiks*]	dental specialty that deals with the study and treatment of the tissues around the teeth
gingiv/o	gum (gingiva)	gingivectomy [*jin-jih-VEK-to-me*]	excision of gum tissue
gloss/o	tongue	glossoplegia [*glos-o-PLE-je-ah*]	paralysis (-plegia) of the tongue
lingu/o	tongue	orolingual [*or-o-LING-gwal*]	pertaining to the mouth and tongue

Roots Pertaining to the Digestive System

Roots for the Mouth *(Continued)*			
Root	**Meaning**	**Example**	**Definition of example**
gnath/o	jaw	prognathous [*PROG-nah-thus*]	having a projecting jaw
labi/o	lip	labium [*LA-be-um*]	lip or lip-like structure
or/o	mouth	circumoral [*sir-kum-OR-al*]	around the mouth
stoma, stomat/o	mouth	xerostomia [*ze-ro-STO-me-ah*]	dryness (xero-) of the mouth
palat/o	palate	palatine [*PAL-ah-tine*]	pertaining to the palate (also palatal)
sial/o	saliva, salivary gland, salivary duct	sialogram [*si-AL-o-gram*]	radiograph of the salivary glands and ducts
uvul/o	uvula	uvulotome [*U-vu-lo-tome*]	instrument (-tome) for incising the uvula

Roots Pertaining to the Digestive System

Roots for the Digestive Tract (Except the Mouth)			
Root	**Meaning**	**Example**	**Definition of example**
esophag/o	esophagus	esophageal* [*e-sof-ah-JE-al*]	pertaining to the esophagus
gastr/o	stomach	gastroparesis [*gas-tro-pah-RE-sis*]	partial paralysis (paresis) of the stomach
pylor/o	pylorus	pyloroplasty [*pi-LOR-o-plas-te*]	plastic repair of the pylorus
enter/o	intestine	dysentery [*DIS-en-ter-e*]	infectious disease of the intestine
duoden/o	duodenum	duodenostomy [*du-o-deh-NOS-to-me*]	surgical creation of an opening into the duodenum
jejun/o	jejunum	jejunectomy [*jeh-ju-NEK-to-me*]	excision of the jejunum
* Note addition of **e** before ***-al***.			

Roots Pertaining to the Digestive System

Roots for the Digestive Tract (Except the Mouth) *(Continued)*			
Root	**Meaning**	**Example**	**Definition of example**
ile/o	ileum	ileitis [*il-e-I-tis*]	inflammation of the ileum
cec/o	cecum	cecoptosis [*se-kop-TO-sis*]	downward displacement of the cecum
col/o, colon/o	colon	coloclysis [*ko-lo-KLI-sis*]	irrigation (-clysis) of the colon
sigmoid/o	sigmoid colon	sigmoidoscope [*sig-MOY-do-skope*]	an endoscope for examining the sigmoid colon
rect/o	rectum	rectocele [*REK-to-sele*]	hernia of the rectum
proct/o	rectum	proctopexy [*PROK-to-pek-se*]	surgical fixation of the rectum
an/o	anus	perianal [*per-e-A-nal*]	around the anus

Roots Pertaining to the Digestive System

Roots for the Accessory Organs			
Root	**Meaning**	**Example**	**Definition of example**
hepat/o	liver	hepatocyte [*HEP-ah-to-site*]	a liver cell
bili	bile	biliary [*BIL-e-ar-e*]	pertaining to the bile or bile ducts
chol/e, chol/o	bile, gall	cholestasis [*ko-le-STA-sis*]	stoppage of bile flow
cholecyst/o	gallbladder	cholecystogram [*ko-le-SIS-to-gram*]	radiograph of the gallbladder
cholangi/o	bile duct	cholangioma [*ko-lan-je-O-mah*]	cancer of the bile ducts
choledoch/o	common bile duct	choledochal [*KO-le-dok-al*]	pertaining to the common bile duct
pancreat/o	pancreas	pancreatotropic [*pan-kre-at-o-TROP-ik*]	acting on the pancreas

Disorders affecting GIT

- **Dysphagia**: a condition of difficulty in swallowing
- **Esophagitis**: is inflammation of esophagus
- **GERD** (gastroesophageal reflux disease): a condition in which the stomach content leak upward from the stomach to the esophagus.
- **Gastritis**: inflammation of the gastric mucosa (lining of the stomach).
- **Gastric ulcer**: it is erosion of the gastric mucosa.
- **Appendicitis**: acute inflammatory diseases that affect the appendix.
- **Peritonitis**: it is inflammation of the peritoneum.
- **Enteritis**: inflammation of the intestine.
- **Anorexia**: it means loss of appetite due to psychological causes.
- **Hyperemesis**: means excessive vomiting.

Disorders affecting GIT

Some diseases or conditions may affect **more than one part** of the digestive system. For example:

- **Gastroenteritis:** inflammation of the stomach and intestine.
- **Gastroduedenitis**: inflammation of the stomach and duodenum.
- **Gastrohepatitis**: inflammation of the stomach and liver.

University of Anbar

College of Dentistry

Year: First

Course: Terminology

Asst. Inst. Noor H. Aljanaby

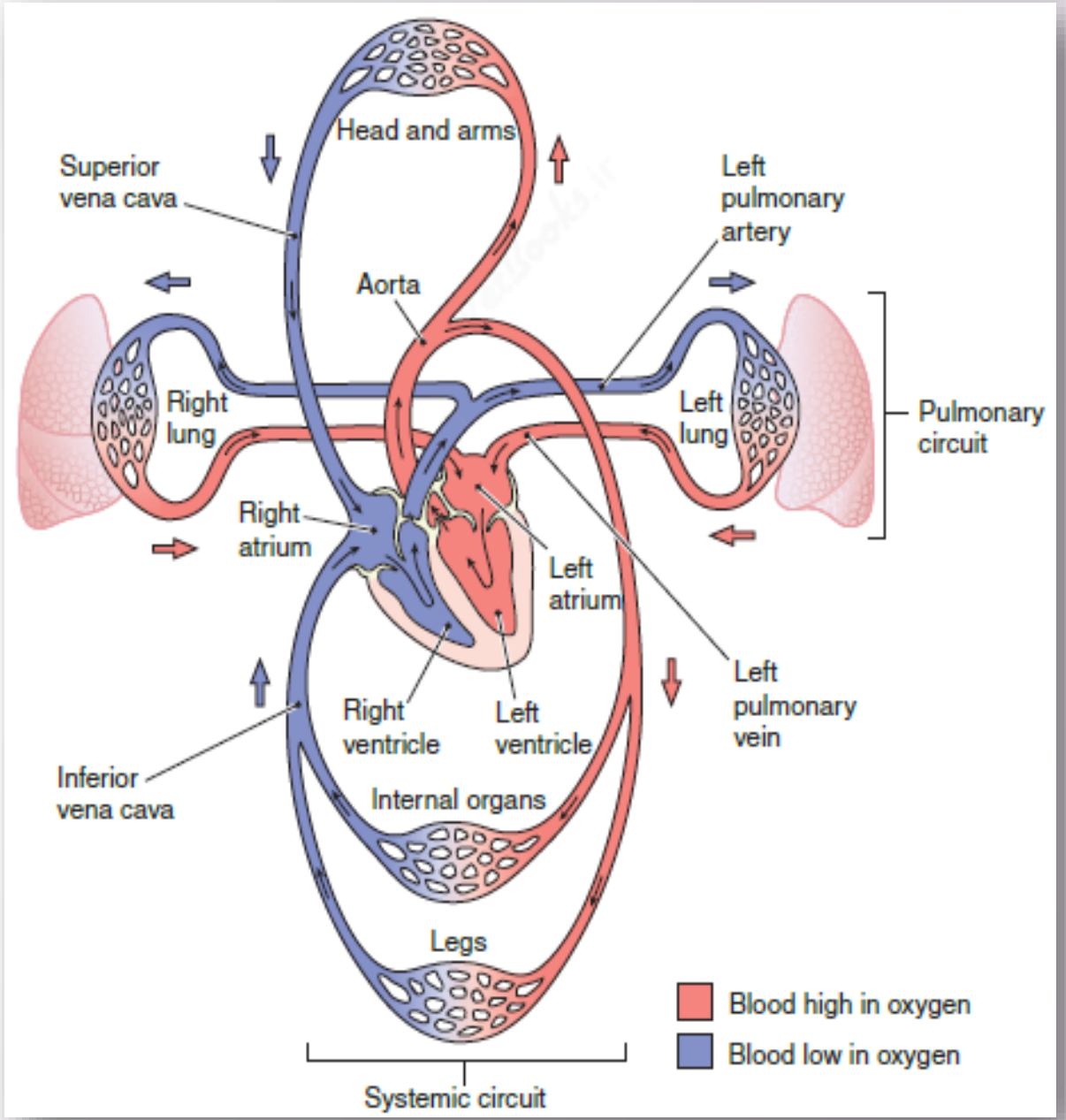
Terminology
Cardiovascular System

Cardiovascular System

- The **cardiovascular system** (also called '**circulatory system**') transports **blood** throughout the body. It consists of the **heart**, **blood vessels**.
- This system forms a **continuous circuit** that delivers **oxygen** and **nutrients** to all cells and carries away waste product.
- The **cardiovascular system** is **essential** for the health of every other system in the body because:
  - It **supplies oxygen and nutrients** to all body parts.
  - It **removes waste products** like carbon dioxide and toxins from the cells.
  - It helps maintain **body temperature**, **hormone distribution**, and **immune responses**.

Without it, **other organs and systems** like the brain, kidneys, and muscles **cannot function properly**.

The Cardiovascular System



The Heart

- The heart is located between the lungs, with its point, or apex, directed toward the inferior and left.
- The **wall of the heart** consists of three layers, all named with the root ***cardi***, meaning “heart.” Moving from the innermost to the outermost layer, these are the:
  1. **Endocardium**—a thin membrane that lines the chambers and valves (the prefix ***endo-*** means “within”).
  2. **Myocardium**—a thick muscle layer that makes up most of the heart wall (the root ***my/o*** means “muscle”).
  3. **Epicardium**—a thin membrane that covers the heart (the prefix ***epi-*** means “on”).
- A fibrous sac, the **pericardium**, contains the heart and anchors it to surrounding structures, such as the **sternum** (breastbone) and **diaphragm** (the prefix ***peri-*** means “around”).

Chambers and Circuits of the Heart

- The heart has **four chambers**:
  - **Two upper chambers** called **atria** (singular: **atrium**) — these **receive blood** coming into the heart.
  - **Two lower chambers** called **ventricles** — these **pump blood** out of the heart.

- These chambers are **separated by walls** called **septa** (singular: **septum**):
  - The **interatrial septum** separates the **left and right atria**.
  - The **interventricular septum** separates the **left and right ventricles**.
  - There is also a wall between the **atrium and ventricle on each side** of the heart.

Chambers and Circuits of the Heart

How the Heart Pumps Blood: Two Circuits

The heart works like a **double pump**, sending blood through **two separate loops**:

1. **Pulmonary Circuit** (Right Side of the Heart):
    1. Pumps **oxygen-poor blood** to the **lungs**.
    2. In the lungs, blood picks up oxygen and releases carbon dioxide.
2. **Systemic Circuit** (Left Side of the Heart):
    1. Pumps **oxygen-rich blood** to the **rest of the body**.
    2. Delivers oxygen and nutrients to cells, and collects waste products.

The Vascular System

- The **vascular system** consists of:

1. **Arteries** that carry blood **away** from the heart.
2. **Arterioles**, vessels smaller than arteries that lead into the capillaries.
3. **Capillaries**, the smallest vessels, through which exchanges take place between the blood and the tissues.
4. **Venules**, small vessels that receive blood from the capillaries and drain into the veins.
5. **Veins** that carry blood **back** to the heart.

The Vascular System

- All **arteries**, except the pulmonary artery (and the umbilical artery in the fetus), carry **highly oxygenated blood**. They are **thick-walled**, elastic vessels that carry blood **under high pressure**.

- All **veins**, except the pulmonary vein (and the umbilical vein in the fetus), carry **blood low in oxygen**. **Veins** have **thinner**, less elastic walls and tend to give way under pressure. Like the heart, veins have one-way valves that keep blood flowing forward.

Roots Pertaining to the Cardiovascular System

Roots for the Heart			
Root	**Meaning**	**Example**	**Definition of example**
cardi/o	heart	cardiomyopathy* [kar-de-o-mi-OP-ah-the]	any disease of the heart muscle
		cardiomegaly [kar-de-o-MEG-ah-le]	enlargement of the heart
		cardiogenic [kar-de-o-JEN-ik]	originating (-genic) in the heart
atri/o	atrium	atriotomy [a-tre-OT-o-me]	surgical incision of an atrium
		atrial [A-tre-al]	pertaining to an atrium (-al)
		interatrial [in-ter-A-tre-al]	between (inter-) the atria
ventricul/o	cavity, ventricle	supraventricular [su-prah-ven-TRIK-u-lar]	above a ventricle
		interventricular [in-ter-ven-TRIK-u-lar]	between the ventricles
		ventricular [ven-TRIK-u-lar]	pertaining to a ventricle (-ar)
valv/o **valvul/o**	valve	valvulotome [VAL-vu-lo-tome]	instrument for incising a valve
		valvuloplasty [val-vu-lo-PLAS-te]	plastic repair of a valve
		valvular [VAL-vu-lar]; valvar [VAL-var]	pertaining to a valve (-ar)

* Preferred over ***myocardiopathy***.

Roots Pertaining to the Cardiovascular System

Roots for the Blood Vessels			
Root	**Meaning**	**Example**	**Definition of example**
angi/o	vessel	angiography [*an-je-OG-rah-fe*]	x-ray imaging of a vessel
hemangi/o	a blood vessel	hemangiectasis [*he-man-je-EK-tah-sis*]	dilatation (-ectasis) of a blood vessel
vas/o **vascul/o**	vessel, duct	vasospasm [*VA-so-spazm*]	sudden contraction of a vessel
arter/o **arteri/o**	artery	endarterial [*end-ar-TE-re-al*]	within an artery
arteriol/o	arteriole	arteriolar [*ar-te-re-O-lar*]	pertaining to an arteriole
aort/o	aorta	aortoptosis [*a-or-top-TO-sis*]	downward displacement of the aorta
ven/o **ven/i**	vein	venous [*VE-nus*]	pertaining to a vein
phleb/o	vein	phlebotomy [*fleh-BOT-o-me*]	incision of a vein to withdraw blood

Terms Pertaining to the Cardiovascular System

- **Pericarditis**: Inflammation of the fibrous sac around the heart
- **Endocarditis**: Inflammation of the heart's lining (usually at a valve)
- **Myocarditis**: Inflammation of the heart muscle
- **Valvotomy**; **Valvulotomy**: Surgical incision of a valve
- **Atrioventricular**: Pertaining to an atrium and a ventricle
- **Cardiology**: Study (-logy) of the heart
- **Myocardial**: Pertaining to the myocardium (-al; ending differs from adjective ending for the heart: ***Cardiac***)
- **Pericardial**: Pertaining to the pericardium (-al)
- **Angioedema**: Localized swelling caused by changes in vessels
- **Endarterectomy**: Removal of the inner lining of an artery
- **Phlebectasia**: Dilatation of a vein
- **Arteriorrhexis**: Rupture of an artery
- **Cardiovascular**: Pertaining to the heart and vessels
- **Angiopathy**: Any disease (-pathy) of a vessel
- **Angiogenesis**: Formation (-genesis) of a vessel
- **Aortosclerosis**: Hardening (-sclerosis) of the aorta

Cardiovascular Disorders	
Key Terms	**Definition**
Arrhythmia	Any abnormality in the rate or rhythm of the heartbeat (literally “without rhythm”; note doubled r); also called ***dysrhythmia***
Arteriosclerosis	Hardening (sclerosis) of the arteries, with loss of capacity and loss of elasticity, as from fatty deposits (plaque), deposit of calcium salts, or scar tissue formation
Bradycardia	A slow heart rate of less than 60 bpm
Diaphoresis	Profuse sweating
Embolism	Obstruction of a blood vessel by a blood clot or other matter carried in the circulation
Heart Block	An interference in the electrical conduction system of the heart resulting in arrhythmia
Heart Failure	A condition caused by the inability of the heart to maintain adequate blood circulation
Hypertension	A condition of higher-than-normal blood pressure; essential (primary, idiopathic) hypertension has no known cause
Tachycardia	An abnormally rapid heart rate, usually over 100 bpm
Thrombophlebitis	Inflammation of a vein associated with formation of a blood clot
Thrombosis	Development of a blood clot within a vessel
Thrombus	A blood clot that forms within a blood vessel (root: thromb/o)
Cerebrovascular Accident (CVA)/ Stroke	Sudden damage to the brain resulting from reduction of blood flow; causes include atherosclerosis, embolism, thrombosis, or hemorrhage from a ruptured aneurysm

University of Anbar

College of Dentistry

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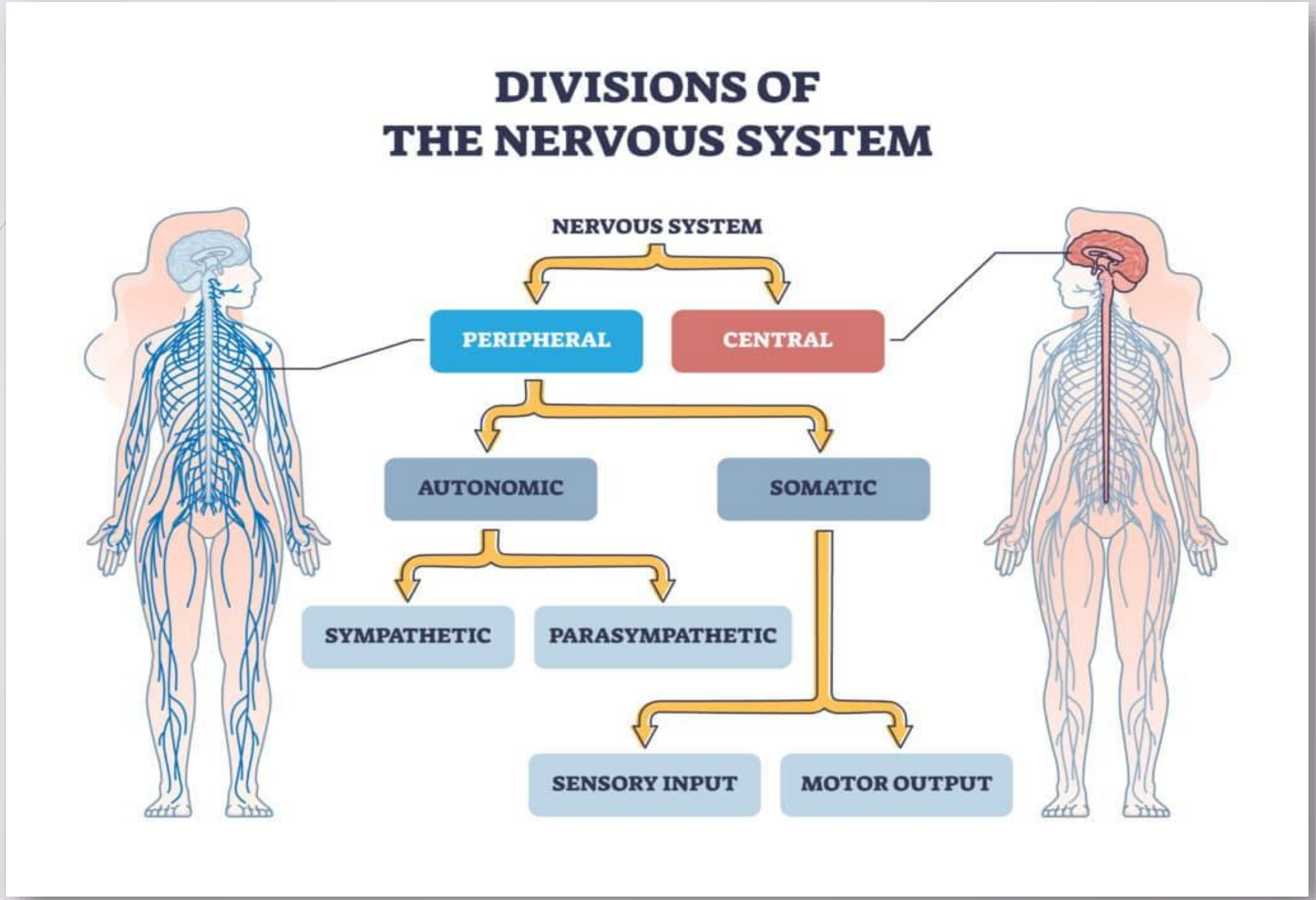
Terminology
Nervous System

Nervous System

- The basic purpose of the **Nervous System** is to **coordinate** all of the activities of the body. It enables the Body to **respond** and **adapt** to changes that occur both inside and outside the body.
- The **nervous system** can be divided **structurally** into two parts:
  - The **central nervous system (CNS)**, consisting of the brain and spinal cord.
  - The **peripheral nervous system (PNS)**, consisting of all nervous tissue outside the brain and spinal cord.
- **Functionally**, the **nervous system** can be divided into the:
  - **Somatic nervous system**, which controls skeletal muscles.
  - **Visceral** or **Autonomic nervous system (ANS)**, which controls smooth muscle, cardiac muscle, and glands; regulates responses to stress; and helps to maintain homeostasis.


DIVISIONS OF
THE NERVOUS SYSTEM
NERVOUS SYSTEM
PERIPHERAL
CENTRAL
AUTONOMIC
SOMATIC
SYMPATHETIC
PARASYMPATHETIC
SENSORY INPUT
MOTOR OUTPUT

Nervous System

- Two types of cells are found in the nervous system:
  - **Neurons**, or **nerve cells**, that make up the conducting tissue of the nervous system.
  - **Neuroglia**, the connective tissue cells of the nervous system that support and protect nervous tissue.

The Neuron

The **neuron** is the nervous system's **basic functional unit**. Each neuron has two types of **fibers** extending from the cell body:

- A **dendrite** carries impulses **toward** the cell body.
- An **axon** carries impulses **away** from the cell body.

NERVES

- **Neurons** have long extensions called **fibers** (axons). These fibers are **grouped together in bundles**, similar to how electrical wires are bundled inside a cable.
  - When this **bundle of fibers** is part of the **Peripheral Nervous System (PNS)**, it is called a **nerve**.
  - Along the path of a nerve, there are sometimes clusters of neuron **cell bodies** grouped together. These clusters are known as **ganglia** (singular: **ganglion**).
- There are **different types of nerves** based on the **kind of neurons** they contain:
  - **Sensory nerves** carry information **toward** the CNS (like signals from your skin or eyes). They contain only **sensory neurons**.
  - **Motor nerves** carry instructions **away** from the CNS to muscles or glands. They contain only **motor neurons**.
  - Most nerves are **mixed nerves**, meaning they contain **both sensory and motor fibers**, allowing them to carry information in **both directions**—to and from the CNS.

The Brain: Structure and Protection

1. What is the Brain?

- The **brain** is **nervous tissue** contained within the **cranium (skull)**.
- It consists of **four main parts**:
  - **Cerebrum** – the **largest** part of the brain.
  - **Diencephalon** – a central part containing structures like the thalamus and hypothalamus.
  - **Brainstem** – connects the brain to the spinal cord and controls basic life functions.
  - **Cerebellum** – responsible for balance and coordination.

2. The Cerebrum

- This is the biggest and most complex part of the brain.
- It consists mainly of **white matter** (inner part) and a **thin outer layer of gray matter** called the **cerebral cortex**.
- The **cerebral cortex** is where the higher brain functions of **memory**, **reasoning**, and **abstract thought** occur.

The Brain: Structure and Protection

3. Protecting the Brain

- Within the brain are four **ventricles** (cavities) in which **cerebrospinal fluid (CSF)** is formed. This fluid circulates around the brain and spinal cord, acting as a **protective cushion** for these tissues.
- Covering the **brain** and the **spinal cord** are three **protective layers**, together called the **meninges** (singular: **meninx**). All are named with the Latin word ***mater***, meaning "**mother**," to indicate their **protective** function. They are the:

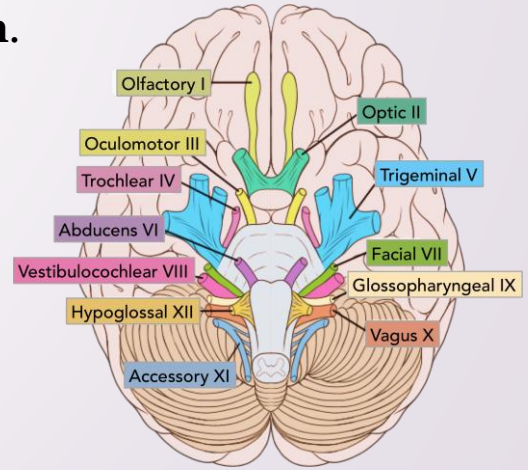
1) **Dura mater**, the **outermost and toughest** of the three. ***Dura*** means "**hard**."
2) **Arachnoid mater**, the thin, **web-like middle** layer. It is named for the Latin word for **spider**, because it resembles a spider web.
3) **Pia mater**, the **thin, vascular inner** layer, attached directly to the tissue of the brain and spinal cord. ***Pia*** means "**tender**."

These layers work together to shield the brain and spinal cord from harm and infection.

The Cranial Nerves

Number	Name	Main Function
I	Olfactory nerve	Smell
II	Optic nerve	Vision
III	Oculomotor nerve	Eye movement, pupil constriction
IV	Trochlear nerve	Eye movement (looking downward)
V	Trigeminal nerve	Facial sensation and chewing
VI	Abducens nerve	Eye movement (side-to-side)
VII	Facial nerve	Facial expressions, taste, salivation
VIII	Vestibulocochlear nerve	Hearing and balance
IX	Glossopharyngeal nerve	Taste, swallowing, saliva secretion
X	Vagus nerve	Heart rate, digestion, voice
XI	Spinal Accessory nerve	Neck and shoulder movement
XII	Hypoglossal nerve	Tongue movement

- The **cranial nerves** are **12 pairs** of nerves that come directly from the **brain** (not from the spinal cord).
- They mainly control the **head and neck** functions, like **smell**, **vision**, **taste**, **eye movement**, **facial expressions**, and some **internal organ activities**.
- Each cranial nerve has a **number** (I to XII) and a **specific function**.
- Some are **sensory** (feel things), some are **motor** (move muscles), and some are **both**.



The Spinal Cord

- It is the **nervous tissue** contained within the **spinal column**; extends from the **medulla oblongata** (the lower part of the brainstem) to the second lumbar vertebra.
- The spinal cord is the **link** between the **brain** and the **nerves** in the rest of your body.

- **The Spinal Nerves**

  31 pairs of spinal nerves connect with the spinal cord. These nerves are grouped in the segments of the cord as follows:

  - Cervical: 8
  - Thoracic: 12
  - Lumbar: 5
  - Sacral: 5
  - Coccygeal: 1

Word Parts Pertaining to the Nervous System

Roots for the Nervous System and the Spinal Cord			
Root	**Meaning**	**Example**	**Definition of example**
neur/o, neur/i	nervous system, nervous tissue, nerve	neurotrophin [*nu-ro-TRO-fin*]	factor that promotes nerve growth (troph/o means "nourish")
gli/o	neuroglia	glial [GLI-al]	pertaining to neuroglia
gangli/o, ganglion/o	ganglion	ganglioma [*gang-gle-O-mah*]	tumor of a ganglion
mening/o, meninge/o	meninges	meningocele [*meh-NING-go-sele*]	hernia of the meninges
myel/o	spinal cord (also bone marrow)	hematomyelia [*he-mah-to-mi-E-le-ah*]	hemorrhage into the spinal cord
radicul/o	spinal nerve root	radiculopathy [*rah-dik-u-LOP-ah-the*]	any disease of a spinal nerve root

Word Parts Pertaining to the Nervous System

Roots for the Brain			
Root	**Meaning**	**Example**	**Definition of example**
encephal/o	brain	anencephaly [*an-en-SEF-ah-le*]	absence of a brain
cerebr/o	cerebrum (loosely, brain)	infracerebral [*in-frah-SER-eh-bral*]	below the cerebrum
cortic/o	cerebral cortex, outer portion	corticospinal [*kor-tih-ko-SPI-nal*]	pertaining to the cerebral cortex and spinal cord
cerebell/o	cerebellum	supracerebellar [*su-prah-ser-eh-BEL-ar*]	above the cerebellum
thalam/o	thalamus	thalamotomy [*thal-ah-MOT-o-me*]	incision of the thalamus

Word Parts Pertaining to the Nervous System

Roots for the Brain *(Continued)*			
Root	**Meaning**	**Example**	**Definition of example**
ventricul/o	cavity, ventricle	intraventricular [*in-trah-ven-TRIK-u-lar*]	within a ventricle
medull/o	medulla oblongata (also spinal cord)	medullary [*MED-u-lar-e*]	pertaining to the medulla
psych/o	mind	psychogenic [*si-ko-JEN-ik*]	originating in the mind
narc/o	stupor, unconsciousness	narcosis [*nar-KO-sis*]	state of stupor induced by drugs
somn/o, somn/i	sleep	somnolence [*SOM-no-lens*]	sleepiness

Word Parts Pertaining to the Nervous System

Suffixes for the Nervous System			
Root	**Meaning**	**Example**	**Definition of example**
-phasia	speech	heterophasia [*het-er-o-FA-ze-ah*]	uttering words that are different from those intended
-lalia	speech, babble	coprolalia [*kop-ro-LA-le-ah*]	compulsive use of obscene words (copro- means “feces”)
-lexia	reading	bradylexia [*brad-e-LEK-se-ah*]	slowness in reading
-plegia	paralysis	tetraplegia [*tet-rah-PLE-je-ah*]	paralysis of all four limbs
-paresis*	partial paralysis, weakness	hemiparesis [*hem-e-pah-RE-sis*]	partial paralysis of one side of the body
-lepsy	seizure	narcolepsy [*NAR-ko-lep-se*]	condition marked by sudden episodes of sleep
-phobia*	persistent, irrational fear	agoraphobia [*ag-o-rah-FO-be-ah*]	fear of being in a public place (from Greek agora, meaning “marketplace”)
-mania*	excited state, obsession	megalomania [*meg-ah-lo-MA-ne-ah*]	exaggerated self-importance; “delusions of grandeur”
* May be used alone as a word.			

Disorders, Symptoms and Conditions

- **Alzheimer disease (AD):** A form of dementia caused by atrophy of the cerebral cortex; presenile dementia.
- **Coma:** State of deep unconsciousness from which one cannot be roused.
- **Dementia:** A gradual and usually irreversible loss of intellectual function.
- **Encephalitis:** Inflammation of the brain.
- **Epidural hematoma:** Accumulation of blood in the epidural space (between the dura mater and the skull).
- **Glioma:** A tumor of neuroglial cells.
- **Hemiparesis:** Partial paralysis or weakness of one side of the body.
- **Hemiplegia:** Paralysis of one side of the body.
- **Insomnia:** Insufficient or nonrestorative sleep despite ample opportunity to sleep.
- **Meningioma**: Tumor of the meninges.

Disorders, Symptoms and Conditions

- **Meningitis:** Inflammation of the meninges.
- **Narcolepsy:** Brief, uncontrollable episodes of sleep during the day.
- **Sleep apnea:** Brief periods of breathing cessation during sleep.
- **Anxiety:** A feeling of fear, worry, uneasiness, or dread.
- **Amnesia:** Loss of memory (from Greek word ***mneme*** meaning 'memory' and the negative prefix ***a-***).
- **Apraxia:** Inability to move with purpose or to use objects properly.
- **Ataxia:** Lack of muscle coordination; dyssynergia.
- **Paraplegia:** Paralysis of the legs and lower part of the body.
- **Parasomnia:** Condition of having undesirable phenomena, such as nightmares, occur during sleep or become worse during sleep.
- **Quadriplegia:** Paralysis of all four limbs; ***tetraplegia***.

University of Anbar

College of Dentistry

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Terminology
Dental Terminology

Dentistry

- **Dentistry**: is the branch of medicine that deals with the diagnosis, treatment and prevention of the diseases that affect the oral cavity and its associated structures.
- **Dentist** (dent/-ist) is the person who practices dentistry. The dentist diagnoses, performs, and monitors the dental care of patients.
- By the nature of their general training, dentists can perform most dental treatments. They are generally assisted by:
  - dental hygienists
  - dental assistants
  - dental laboratory technicians

Main Branches of Dentistry

- **Oral Medicine**: the branch of dentistry that deals with the diagnosis and treatment of diseases affecting the oral cavity.
- **Oral and Maxillofacial Radiology**: is concerned with performance and interpretation of diagnostic imaging used for examining the craniofacial, dental and adjacent structures.
- **Oral and Maxillofacial Pathology**: is concerned with diagnosis and study of the causes and effects of diseases affecting the oral and maxillofacial region.
- **Oral and Maxillofacial Surgery**: is a specialty concerned with the surgical treatment of diseases, injuries and defects in in the head, neck, face, jaws and the hard and/or soft tissues of the oral and maxillofacial region.
- **Restorative and Aesthetic Dentistry**: deals with restoring decayed teeth in order to preserve their function, shape and aesthetic.

Main Branches of Dentistry

- **Periodontology (Periodontics):** the branch of dentistry that deals with the diagnosis and treatment of diseases affecting the tissues surrounding and supporting the teeth.
- **Pediatric Dentistry (Pedodontics):** the branch of dentistry that deals with the treatment of children's teeth.
- **Preventive Dentistry:** deals with preservation of healthy teeth and gums and the prevention of dental caries and oral disease.
- **Orthodontics:** the branch that deals with treatment of teeth mal-alignment and mal-occlusion in order to restore normal function and aesthetics of teeth.
- **Prosthodontics:** deals with prosthetic replacement of the missing teeth and dental tissues by fixed or removable prosthesis.
- **Endodontics:** the branch of dentistry that deals with the diseases and treatments of the dental pulp.

Word Parts Pertaining to Dentistry

Combining Form	Meaning	Example	Definition of Example
or/o **stomat/o**	mouth	*oral*	Pertaining to the mouth
		stomatitis	Inflammation of the mouth
gloss/o **lingu/o**	tongue	*glossectomy*	-ectomy = excision, surgical removal
		lingual	Pertaining to the tongue
bucc/o	cheek	*buccal*	Pertaining to the cheek
labi/o	lip	*labial*	Pertaining to the lips
dent/o, denti **odont/o**	teeth	*dentist*	-ist = specialist
		dentilabial	relating to both teeth and lips
		orthodontist	Orth-= straight; dentist who straightens teeth and corrects malocclusions
		odontorrhagia	Profuse bleeding after an extraction
gingiv/o	gum	*gingivectomy*	surgical excision of unattached gingival tissue
		gingivitis	inflammation of the gums
sial/o	saliva	*sialolith*	-lith=stone, calculus.

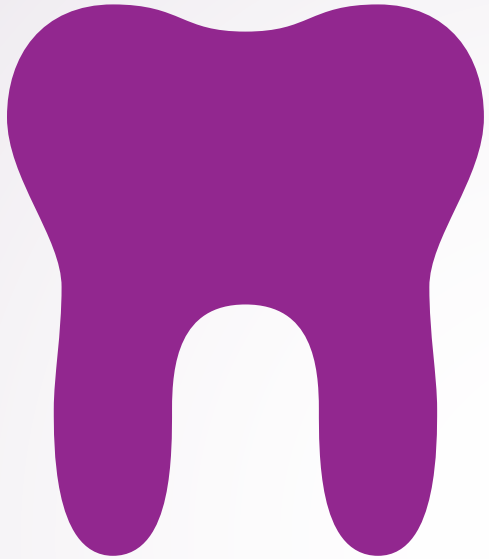
Abbreviations Related to Dentistry

Abbreviation	Meaning	Abbreviation	Meaning
DMD	Doctor of Medical Dentistry	**BDS**	Bachelor of Dental Surgery
DDS	Doctor of Dental Surgery	**CDA**	Certified Dental Assistant
RDH	Registered Dental Hygienist	**TMJ**	Temporomandibular Joint
dmf	decayed, missing, or filled (primary teeth)	**DMF**	decayed, missing, or filled (permanent teeth)
def	decayed, extracted, or filled (primary teeth)	**DEF**	decayed, extracted, or filled (permanent teeth)

Common Conditions that Affect the Oral Cavity

- **Dental Caries** = tooth decay = cavities in the teeth caused by bacteria.
- **Bruxism** = involuntary grinding of the teeth that usually occurs during sleep.
- **Trismus**: Restricted ability to open the mouth.
- **Stomatitis** = inflammation of the mouth.
- **Gingivitis** = inflammation of the gingiva (gum).
- **Odontalgia** = toothache = pain in the tooth.
- **Oligodontia** = Reduced number of teeth.
- **Anodontia** = Congenital absence of teeth.
- **Crossbite** = reverse biting relationship of upper and lower teeth also called class III malocclusion.
- **Malocclusions**: Abnormal closures of the top teeth in relation to the bottom teeth.
- **Temporomandibular Joint (TMJ) Dysfunction** = Pain in the jawline due to dislocation of the joint.

Note: A very important joint in the skull called temporomandibular joint (TMJ): it is the joint connecting the lower jaw (mandible) to the skull.



Common Clinical Dental Terms

Oral and Maxillofacial Surgery

- **Impaction**: an unerupted or partially erupted tooth.
- **Tooth Extraction**: a dental procedure during which your tooth is completely removed from its socket.
- **Avulsion**: separation of tooth from its socket due to trauma.
- **Incision**: is a cut through the skin or mucosa that is made during surgery.
- **Abscess**: Acute or chronic localized inflammation, probably with a collection of pus.
- **Acute Abscess**: An inflammatory reaction and necrosis characterized by rapid onset.
- **Chronic Abscess**: An inflammatory reaction and necrosis characterized by gradual onset.

Oral and Maxillofacial Surgery

- **Implant**: A titanium screw that is placed in the jawbone to replace a missing tooth.
- **Suture**: is a thread used to hold tissues together after injury or surgery.
- **Analgesia**: pain relief without loss of consciousness and without total loss of feeling or movement.
- **Anesthesia**: anesthesia is defined as the loss of physical sensation with or without loss of consciousness.
- **Local Anesthesia**: the elimination of sensation, especially pain, in one part of the body by the topical application or regional injection of a drug.
- **Inhalation**: a technique of administration in which a gaseous or volatile agent is introduced into the lungs.

Oral and Maxillofacial Surgery

- **Intravenous**: a technique of administration in which a medicine is introduced directly into the patient's venous system.
- **Sedation**: the reduction of irritability or agitation by administration of sedative drugs, generally to facilitate a medical procedure or diagnostic.
- **Enteral**: any technique of administration in which the agent is absorbed through the gastrointestinal (GI) tract or oral mucosa (i.e., oral, rectal, sublingual).
- **Parenteral**: a technique of administration in which the drug bypasses the gastrointestinal (GI) tract (i.e., intramuscular [IM], intravenous [IV], intranasal [IN], submucosal [SM], subcutaneous [SC], intraosseous [IO].

Oral and Maxillofacial Surgery

- **Transdermal**: a technique of administration in which the drug is administered by patch or iontophoresis through skin.
- **Transmucosal**: a technique of administration in which the drug is administered across mucosa such as intranasal, sublingual, or rectal.
- **Inflammation**: is the complex biological response of body tissues to harmful stimuli, such as pathogens or foreign bodies.
- **Infection**: an invasion of the body by harmful microorganisms or parasites.
- **Anomaly**: deviation from the normal anatomic structure, growth, development, or function; an abnormality.
- **Biopsy**: Process of removing tissue for histologic evaluation.

Prosthodontics

- **Dental Prosthesis**: an intraoral (inside the mouth) appliance used to restore (reconstruct) intraoral defects such as missing teeth, missing parts of teeth, and missing soft or hard structures.
- **Dental Arch**: The curved structure of the natural dentition and the residual ridge such as maxillary arch and mandibular arch.
- **Denture**: a removable replacement for missing teeth and surrounding tissues.
- **Partial Denture**: A removable appliance (prosthesis) that replaces some of the teeth in either the upper or lower jaw.
- **Fixed Partial Denture**: A non-removable (cemented) prosthetic replacement of one or more missing teeth.
- **Impression**: is a negative imprint of hard and soft tissues in the mouth from which a positive reproduction such as a cast model.
- **Impression Tray**: is a tool used to hold and carry the impression material to the oral cavity.
- **Articulator**: a mechanical instrument that represents the temporomandibular joints (TMJs) and jaws
- **Clasp**: is a circumferential retainer for a removable dental prosthesis.

Operative Dentistry

- **Restoration**: is the act of restoring something to its original state.
- **Filling**: a term used for the restoring of lost tooth structure by using materials such as metal, alloy, plastic, or porcelain.
- **Cavity Preparation**: the procedure used to remove demineralized enamel and infected dentin.
- **Amalgam Filling**: is a metal material used to fill cavities caused by tooth decay.
- **Composite Filling**: is a plastic material used to fill cavities caused by tooth decay.
- **Inlay**: A laboratory processed tooth filling restoration made of metal, composite, or porcelain.
- **Onlay**: A laboratory processed tooth covering restoration made of metal, composite, or porcelain.
- **Lining**: a thin material placed underneath the amalgam restoration for thermal isolation.
- **Bonding**: Process by which two or more components are made connected by mechanical and/or chemical adhesion.

Crown and Bridge

- **Crown**: a restoration covering or replacing the major part, or the whole of the clinical crown of a tooth.
- **A dental bridge:** is used to replace one or more missing teeth.
- **Veneer**: A thin covering of the facial surface of a tooth.
- **Pontic**: The term used for an artificial tooth on a fixed partial denture (bridge).
- **Porcelain/Ceramic**: Refers to materials containing predominantly inorganic refractory compounds including porcelains, glasses, ceramics, and glass-ceramics.

Endodontics

- **Apex**: The tip or end of the root end of the tooth.
- **Apicectomy**: Amputation of the apex of a tooth.
- **Root Canal**: Space inside the root portion of a tooth containing pulp tissue.
- **Pulp**: Connective tissue that contains blood vessels and nerve tissue which occupies the pulp cavity of a tooth.
- **Pulpitis**: Inflammation of the dental pulp.
- **Radiograph**: An image or picture produced on a radiation sensitive film by exposure to ionizing radiation.
- **Obturation**: refers to the sealing of the canal(s) of tooth roots during root canal therapy.

Orthodontics

- **Oral Diagnosis**: The determination by a dentist of the oral health condition of an individual patient.
- **Mixed Dentition**: a term used where both primary and permanent teeth are in the oral cavity together.
- **Panorama**: Commonly known as an OPG. An x-ray taken outside of the mouth that shows all the teeth on one film.
- **Space Maintainer**: A passive appliance, usually cemented in place, that holds teeth in position.
- **Orthodontic Retainer**: Appliance to stabilize teeth following orthodontic treatment.
- **Mouthguard**: Individually molded device designed primarily to be worn for the purpose of helping prevent injury to the teeth and their surrounding tissues.
- **Palate**: The hard and soft tissues forming the roof of the mouth.
- **Temporomandibular Joint (TMJ)**: The connecting hinge mechanism between the base of the skull (temporal bone) and the lower jaw (mandible).

Periodontics

- **Periodontal Pocket**: The gap that forms when the gums detach from the side of the tooth.
- **Periodontitis**: Inflammation and loss of the connective tissue of the supporting or surrounding structure of teeth.
- **Plaque**: A sticky and thin bacterial film on the teeth.
- **Calculus**: Hard deposit of mineralized substance adhering to crowns and/or roots of teeth.
- **Scaling**: Removal calculus from teeth.
- **Periodontal Disease**: Inflammatory process of the gingival tissues and/or periodontal membrane of the teeth.
- **Sialorrhea:** an increased amount of the retaining saliva.
- **Xerostomia**: Decreased salivary secretion.