

## **Summer Assignment Template**

**Course Title: HONORS ANATOMY & PHYSIOLOGY** 

**Teacher: SHELLEY PIKE** 

PLC Content Area: A&P

Summer Assignment Description	
	Understanding Medical Terminology
Date Due	First day of 2023-2024 school year
Estimated Time for Completion	1-3 Hours
Tennessee Academic Standards/Approved Standards Supporting Reference (List standard(s) correlation to summer work)	HAP.LS1.1 Investigate the organization of the human body in relation to its ability to accomplish life functions and construct an explanation for the relationship between anatomy and physiology.
Rationale for Summer Assignment	Honors A&P is based in medical terminology and an understanding of Latin word parts is crucial for success.
Resources needed to complete Summer assignment	Understanding Medical Terminology Booklet and attached worksheets
How and when will this summer assignment be assessed and scored? Also, what grading category and what percentage will this summer assignment count in the student's grade?	There will be a quiz over the word parts in the two worksheets on Friday of the first week of school.
Additional Summer Assessments (If applicable - what grading category and what percentage will each additional summer assignment count in the student's grade?)	*Two worksheets will count as a classwork grade  *QUIZ over the worksheets will count as an assessment grade.
Teacher Summer Contact Information	Rhonda.pike@acsk-12.org

# HONORS ANATOMY & PHYSIOLOGY SUMMER WORK 2023-2024 School Year

\*Understanding Medical Terminology Booklet\*

Students will complete the worksheets accompanying the Understanding Medical Terminology Booklet to show a basic understanding of the Latin medical word parts; prefixes, root words and suffixes.

- Read the Introduction to Medical Terminology section.
- 2. Print out and complete the two worksheets at the end of the booklet.
- 3. Both worksheets will be due the first day of school.
- 4. There will be a quiz over the word parts from the worksheets the first Friday of school. **YOU DO NOT**HAVE TO LEARN ALL TERMS IN THE BOOKLET! The QUIZ will only be over the terms in the worksheets.



## Understanding Medical Terminology



#### **Learning Objectives**

Upon Completion of this section, you should be able to:

- 1. Discuss the importance of medical terminology and how it can be incorporated into the study of the human body
- 2. Differentiate between a prefix, suffix, root word and compound word.
- 3. Link word parts to form medical terms.
- 4. Differentiate between singular & plural endings of medical terms.
- 5. Practice pronunciation of medical terms.
- 6. Dissect compound medical words into parts to analyze the meaning.
- 7. Recognize the more commonly used prefixes, suffixes & root words used in medical terminology.

#### **Introduction to Medical Terminology**

As students of medical science, we are inheritors of a vast fortune of knowledge. This fortune, amassed by giants of eighteenth- and nineteenth-century scholarship, was nurtured largely in the atmospheres of universities in which Latin and Greek were the languages of lecture and writing. Scientists then strove to define a universal language in which to communicate their findings. Latin and Greek, studied throughout Europe, became the languages of choice for scholars whose native tongue was English, German, French, Spanish and so on, because they all read in Latin and Greek. So, many works in medicine were first penned in Latin, and their vocabularies remain to this day.

Anatomy and physiology were born in the eighteenth century in the midst of a glut of quacks, frauds, charlatans, myths and superstitions. Honest scholars sought proofs to banish practices that should have been questioned by reason and proved wrong by experience. These scholars were among the first to connect disease with the failure of function or structure of body tissue; thus the race to name and define all anatomical structures began.

Problems arose, inevitably, with the discovery of unknown tissue. Names were virtually created from existing words by combining parts until they approximated an acceptable description. Medical terminology is simply a catalog of parts that allows us to take apart and reassemble the special language of medicine. The study of medical terminology is easier than it seems.

Medical words have three basic parts: prefix, root word and suffix. A prefix comes before the word and alters the meaning. For example, the prefix *hyper* means over or above. Hyper/kinetic means overactive, hyperesthesia means overly sensitive, hypertension is high blood pressure and hypertrophy is overdevelopment.

A suffix is attached to the end of a root word and also alters the meaning of the word. For example, the suffix – *itis* means inflammation. Inflammation can occur at almost any part of the body, so –*itis* can be added to root words to make hundreds of words. Dermat/it

is is inflammation of the skin, rhin/it is is inflammation of the nose, gastr/it is is inflammation of the stomach and so on.

A root word is the main part of the word. Once a root word is known for each part of the anatomy, the prefixes and suffixes can be used to analyze and/or become many medical words. The root word for heart is *cardi*. A few terms in which *cardi* appears are: cardi/algia meaning pain in the heart, cardio/megaly means enlarged heart, brady/cardia means slow heart and peri/cardio/centesis means puncture to aspirate fluid from around the heart.

Many medical words have, in addition to a prefix and/or suffix, more than one word part. These are called compound words and can be analyzed by breaking them into parts. For example, hysterosalpingo-oophorectomy is made up of three root words and a suffix. *Hyster* is the root word for uterus, *salping* is the root word for tube, *oophor* is the root word for ovary and *-ectomy* is the suffix for to cut out. Now we know that hysterosalpingo-oophorectomy means the surgical excision of the uterus, tube and ovary.

To facilitate pronunciation, word parts need to be linked together. The linkage for word parts is o and is to be referred to as a combining form. For example, linking the root cardi with the suffix -pathy would produce a word that is difficult to pronounce; therefore an o is used to link the root word with the suffix. The complete word is written cardiopathy and pronounced kar"de-op'ah-the, and the combining form is cardi/o.

When a word is only a root or ends with a root, the word ending depends on whether the word is a noun or an adjective. For example, duodenum (noun) is a part of the small intestine. Duodenal (adjective) is related to the duodenum (for example, duodenal ulcer).

Accurate spelling of each word part is essential:

- 1. Changing one letter may change the word part. For example, *ileum* is a part of the small intestine, whereas *ilium* is a pelvic bone.
- 2. Finding a word in the dictionary requires a knowledge of spelling at least of the beginning of the word. For example, *pneumonia* and *psychology* have a silent p, rhinitis has a silent h and *eupena* (easy breathing) has an initial silent e.

#### PLURAL ENDINGS

In many English words, the plurals are formed by adding s or es, but in Latin and Greek, the plural may be designated by changing the ending:

<u>Singular Ending</u>	<u>Plural Ending</u>	<u>Examples</u>
a	ae	aorta-aortae
ax	aces	thorax-thoraces
en	ena	lumen-lumena
ex, ix	ices	cortex-cortices
		appendix-appendices
is	es	testis-testes
on, um	a	phenomenon-phenomena
		medium-media
ur	ora	femur-femora
us	i	bronchus-bronchi
X	ces	calyx-calyces
У	ies	anomaly-anomalies
ma	mata	adenoma-adenomata

## Commonly Used Prefixes

Prefix	Meaning	Example
a-, an-, in-	without, negative	a/men/orrhea - without a monthly flow
ab-	from, away from	ab/normal - away from normal
ad-, ac-, as-, at-	to, toward	ad/duct - carry toward
aniso-	unequal	an/iso/cyt/osis -condition of unequal cells
ante-, pre-	before	anterior - front; pre/natal - before birth
anti-, ant-, ob-	against	anti/pyre/tic - agent used against fever
bi-	two	bi/lateral - two sides
bio-	Life	bio/logy - study of life
brachy-	short	brachy/dactyl/ism - short fingers & toes
brady-	slow	brady/cardia - slow heart rate
cent-	hundred	centi/meter - one one-hundredth of a meter
circum-	around	circum/cis/ion - to cut around
co-, com-, con-	with/together	con/genital - born with
contra-	against	contra/indicated - against indication
de-	away from	de/hydrate - loss of water
dextr-	right	dextr/o/cardia - heart displaced to right
dia-	through	dia/rrhea - flow through
dis-	apart	dis/sect - to cut apart
dys-	bad, difficult	dys/pnea - difficult breathing
e-, ex-	out, out from	ex/cise - to cut out
ect-, exo-, extra-	outside	extra/corporeal - outside the body
en-	in, on	en/capsulated - in a capsule
end-	within	endo/scopy - visualization within
epi-	upon	epi/dermis - upon the skin
eu-	good	eu/phonic - good sound
hemi-, semi-	half	hemi/gastr/ectomy-surgical removal half of
hyper-	over, above	stomach
hypo-	under, below	hyper/kinetic - overactive
immun-	free, exempt	hypo/glossel - under the tongue
infra-	beneath	immun/ity - exempt from effects of disease agents
inter-	between	infra/mammary - beneath the breast
intra-	within	inter/cellular - between cells
kil-	thousand	intra/cranial - within the cranium
lyso-	dissolution	kilo/gram - 1,000 grams
macr-	large	lyso/some - organelle that degrades worn cell parts
mal-	bad	macro/cyte - large cell
mes-	middle	mal/nutrition - bad nurishment
meta-	after, beyond	mes/entery - middle of intestine
micr-	small	meta/carpals - beyond the carpals (wrist)
milli-	one-thousandth	micro/cephal/ic - having a small head
multi-	many	milli/liter - one one-thousandth of a liter
neo-	new	multi/para - one who has many children
olig-	scanty, few	neo/plasm - new growth
onc-	tumor	olig/uria - scanty amount of urine
per-	through	onc/ology – study of tumors
peri-	around	per/cutaneous - through the skin

pleur-	rib, side	peri/tonsillar - around the tonsil
poly-	much, many	pleur/al membranes - enclosing lungs
post-	after	poly/cystic - many cysts
pre-	before	post/mortem - after death
presby-	old	pre/natal - before birth
primi-	first	presby/opia - old vision
pro-	before	primi/gravida - first pregnancy
re-	back, again	pro/gnosis - foreknowledge/ predict outcome
retr-	behind	re/generate - produce , develop again
sub-	under	retro/sternal - behind the sternum
super-, supra-	above	sub/lingual - below the tongue
syn-, sym-	with, together	superior - above
tachy-	fast	syn/ergism - working together
		tachy/phasia - fast speech

## Commonly Used Root Words

Roots	Meaning	Example
acr-	extremity, peak	acro/megaly - enlarged extremeties
aden-	gland	adeno/pathy - disease of a gland
aer-	air	aero/phagia - swallowing air
angi-	vessel	angi/oma - tumor of a vessel
arthr-	joint	arthr/algia - pain in the joint
blast-	bud	neuro/blast - growing nerve cell
blephar-	eyelid	blepharo/ptosis - drooping of eyelid
brachi-	arm	brachial - pertaining to the arm
bronch-	windpipe	bronch/us - a branch of the trachea
carcin-	cancer	adeno/carcin/oma - cancerous tumor of a gland
cardi	heart	myo/cardi/tis - inflammation of heart muscle
carp-	wrist	flexor carpi - muscle to bend wrist
caud-	tail	caudal – pertaining to tail
celio-	abdomen	celio/tomy - incision of the abdomen
cephal-	head	cephalo/dynia - pain in the head
cervic-	neck	cervic/itis - inflammation of the neck of uterus
cheil-	lip	chelio/plasty - shaping the lip
cheir-, chir-	hand	chiro/megaly - large hands
chol-	bile, gall	chole/cyst/ectomy - surgical removal of gallbladder
chondr-	cartilage	chondro/malacia - softening of cartilage
chrom-	color	poly/chromatic - having many colors
chron-	time	syn/chron/ous - occuring at the same time
col-	colon	mega/colon - enlarged colon
colp-	vagina	colp/orrhaphy - suture of vagina
cost-	rib	inter/costal - between the ribs
crani-	skull	crani/otomy - incision into the skull
cry-	cold	cryo/philic - cold loving
crypt-	hidden	crypt/orchid/ism - hidden (undescended) testicle
cutan-, cut-	skin	sub/cutaneous - below the skin

cyanblue acro/cyan/osis - condition of blue extremeties bladder cysto/cele - bladder hernia cystcytcell thrombo/cyte - clotting cell (platelet) dacryo/rrhea - flow of tears dacrytear poly/dactyl/ism - too many fingers and toes fingers, toes dactvldent-, odonttooth peri/odontal - around the teeth derm-. dermatskin intra/dermal - within the skin dextrriaht dextro/cardia - heart displaced to the right poly/dipsia - excessive thirst dipsthirst dorsdorsal - pertaining to the back back ovi/duct - tube to carry ova (eggs) ductcarry encephalbrain encephalo/cele - hernia of the brain intestine gastro/enter/itis-inflammation of stomach/intestine enterwork en/ergy - working with eraerythro/cyto/penia - deficiency of red cells erthyrred esthesensation an/esthe/tic - agent to eliminate sensation esthenweakness my/esthenia - muscle weakness febra/febrile - without a fever fever dorsi/flex - bend backward flexbend gastro/scopy - visualization of the stomach gastrstomach patho/genic - agent that produces disease genproduce gingivgums gingiv/ectomy - removal of gums hypo/glossal - under the tongue glosstongue glyc-, glu hypo/glyc/emia - low blood sugar sugar gnathjaw micro/gnath/ism - small jaw secundi/gravida - second pregnancy heavv gravgeneco/logy - study of female conditions femal gynecblood hemat/emesis - vomiting blood hem-, hemathepatliver hepato/megaly - enlarged liver heterdifferent hetero/genous - different origins hidrhidro/rrhea - flow of perspiration perspiration histo/logy - study of tissue histtissue home-, hom homeo/stasis - stay same, equilibrium same hydr-, hydrawater de/hydra/tion - process of losing water hyster/ectomy - removal of the uterus hysteruterus iatro/genic - produced by the physicain iatrphysician irid/ectomy - surgical removal of iris iridiris isegual iso/tonic - equal in pressure mega/kayro/cyte - cell with large nucleus nut, nucleus karykeratkerato/plasty - repair of cornea cornea kinesio/logy - study of movement kinmove lacrimlacrima/tion - crying tear lacto/genic - milk producing lact-, galactmilk abdomen laparo/rrhaphy - suture of the abdomen laparlarynglarynx laryngo/scopy - visualization of the larynx laterside bi/lateral - two sides leuk. leuc leuko/rrhea - white discharge white sub/lingual - under the tongue lingutongue lip/oma - tumor of fat lipfat

lithstone litho/tripsy - crushing a stone mast/itis - inflammation of the breast mast-, mammbreast melan/oma - black tumor melanblack monthly, menses dys/meno/rrhea - difficult monthly flow menmening/es - membranes covering brain & sp. cord membrane meningendo/metr/ium - lining of uterus metruterus morphshape, form poly/morphic - pertaining to many shapes myo/metr/itis - inflammation of muscle of uterus mymuscle onycho/myc/osis - fungus condition of the nails mycfungus marrow, sp. cord myelo/gram - Xray record of spinal cord myelmyringo/tomy - opening into eardrum eardrum myringnasnose naso/pharyng/eal - pertaining to nose & throat to be born pre/nat/al - before birth natnecr/opsy - examining dead bodies, autopsy dead necrnephr-, renkidney hydro/nephr/osis-abnormal condition-water in kids neur/algia - nerve pain neurnerve noct/uria - voiding at night noct-, nyctnight nucle/us - dense core (kernel) of an atom/cell nuclekernel nullnulli/gravida - woman who has had no pregnancies none mon/ocular - pertaining to one eye oculeye omphalo/rrhea - discharge from the naval omphalumbilicus onychonycho/crypt/osis - hidden nail condition (ingrown) nail 00oo/genesis - producing eggs ova, egg oophoro/cyst/ectomy - removal of cyst from ovary oophorovary ophthalmex/ophthalmos - condition of protruding eyes eye oro/pharyngeal - pertaining to mouth & throat ormouth orchid/ectomy - removal of testis orchidtestis an/orexis - absence of appetite orexisappetite orthstraight orth/odont/ist - one who straightens teeth osteo/chondr/oma - tumor of bone & cartilage oste-, ossbone ot/itis - inflammation of the ear ot-, aurear primi/para - to bear first child to bear paradisease patho/physio/logy - study effects of disease on pathpectchest body pectoralis - chest muscle pedchild ped/iatrician - doctor who specializes in children pepsdigest dys/pepsia - bad digestion phagswallow, eat pharmaedrug a/phagia - inability to swallow throat pharmaco/logy - study of drugs pharyngphasspeak, say pharyng/itis - inflammation of the throat phlebtachy/phasia - speaking fast vein phonvoice phlebo/thromb/osis - condition of clot in vein phrendiaphragm a/phonic - absence of voice pil-, trichphreno/hepatic - pertaining to diaphragm & liver hair tricho/glossia - hairy tongue pneumair, breath pneumo/thorax - air in the chest pneumonlung pneumon/ectomy - surgical removal of the lung -boq foot pod/iatrist - one who specializes in foot problems proctrectum procto/scopy - visualization of the rectum pseudfalse pseudo/cyesis - false pregnancy

psych-

mind

pulmo(n)lung psycho/somatic - pertaining to the mind & body cardio/pulmonary - pertaining to the heart & lungs pus руpyelkidney, pelvis pvo/rrhea - flow of pus pyelo/nephr/itis - inflammation of the kidney pelvis door, orifice pylfire. fever pyl/oric sphincter - muscle ring controlling food pyrquadrifour flow rhinanti/pyretic - agent used against fever nose salpingtube quadri/plegia - paralysis of all four extremities rhino/plasty - revision of the nose blood sanguinsarc-, sarcoflesh. salping/itis - inflammation of the uterine tube ex/sanguina/tion - process of bleeding out(to sclerhard sectcut death) sarco/lemma - cell membrane of a muscle fiber septcontamination arterio/scler/osis - condition of hardening of sialsaliva stennarrow, constrict arteries mouth dis/section - cutting apart stomatdraw tight anti/septic - agent used against contamination strictorder, arrange poly/sialia - excessive salivation taxpyloric stenosis - narrowing of pyloric tendon tenstomat/itis - inflammation of the mouth thermheat vaso/con/strict - agent that compresses vessels thoracchest a/taxic - uncoordinated thrombclot poison reno/rraphy - suture a tendon toxtrachewindpipe hyper/thermia - raising body heat thoraco/centesis - puncture to aspirate chest fluid trachelneck thrombo/cyte - clotting cell wound traumattritox/emia - poison in the blood three tracheo/malacia - softening of tracheal cartilages trophturn ururine trachel/orraphy - suture of cervix (uterine neck) traumat/ology - study of trauma vasvessel tri/geminal - having three beginnings vertturn bladder ec/tropion - turned out vesicinternal organs ur/emia - urine constituents in the blood viscervitalife vaso/constriction - narrowing of a vessel retro/vert/ed - turned backward vesico/cele - hernia of the bladder e/viscera/tion - viscera protruding from ab wall vital - necessary for life

## **Commonly Used Suffixes**

Suffix	Meaning	Example
-algia	pain	dent/algia - pain in the tooth
-atresia	without opening	proct/atresia - rectum without an opening
-cele	hernia	omphalo/cele - umbilical hernia
-centesis	aspirate fluid	arthro/centesis - puncture to aspirate fluid from
-cept	take, receive	joint
-cide	kill	re/cept/or - something that receives again
-cis	cut	bacteri/cidal - able to kill bacteria
-cyte	cell	circum/cis/ion - cutting around
-denia	pain	erythro/cyte - red cell
-desis	fusion	cephalo/denia - pain in the head
-ectasia	expansion	arthro/desis - fusion of a joint
-ectomy	cut out, exise	cor/ectacis - expanding/dilating pupil
-edema	swelling	nephr/ectomy - surgically remove kidney
-emesis	vomiting	cephal/edema - swelling of head
-emia	blood	hyper/emesis – excessive vomiting
-gnosis	knowledge	hyper/glyc/emia - elevated blood sugar
-gram	record	dia/gnosis - knowledge through examination
-graphy	making a record	myelo/gram - Xray of the spinal cord
-iasis	condition	angio/graphy - making a record of vessels
-ist	one who	chole/lith/iasis - condition of gallstones
-itis	inflammation	opto/metr/ist - one who measures vision
-lepsy	seizures	aden/itis - inflammation of a gland
-logist	specialist	narco/lepsy - siezures of numbness
-logy	study of	ophthalmo/log/ist - one who specializes in eyes
-lysis, -lytic, lyze	break down	bio/logy - study of life
-lyt	dissolvable	teno/lysis - destruction of tendons
-malacia	abn. softening	electro/lyte - substances that ionizes in water
-mani	madness	osteo/malacia - abnormal softening of bone
-megaly	enlargement	pyro/mania - irresistible urge to set fires
-meter	measure	spleno/megaly - enlargement of spleen
-oid	resembling	thermo/meter - instrument to measure temperature
-oma	tumor	muc/oid - resembling mucus
-opia	vision	neur/oma - nerve tumor
-osis	abn. condition	ambly/opia - dim vision
-osme	smell	nephr/osis - abnormal condition of kidney
-ostomy	create opening	an/osmia - inability to smell
-otia	ear	col/ostomy - to create an opening in the colon
-pathy	disease	macr/otia - large ear
-penia	deficiency, poor	encephalo/pathy - disease of the brain
-pepsia	digestion	leuko/cyto/penia - deficiency of white cells
-pexy	surgical fixation	dys/pepsia - bad digestion
-phasia	speak, say	mephro/pexy - surgical fixation of kidney
-philia	love, attraction	a/phasia - without ability to speak
-phobia	abnormal fear	chromo/philic - attracted to color

-plasia -plasm -plasty -plegia -pnea -ptosis -rrhagia -rrhaphy -rrhea -rrhexis -scope -scopy -some, soma -spasm -stasis -therapy -tome -tomy -tripsy -trophy, -trophic, -uria

formation substance make, shape paralysis breath prolapse, drop burst forth suture, sew flow, discharge rupture view instument visualization body twitching stop, control treatment instrument to cut to cut crushing development urine

agora/phobic - abnormal fear of crowds hyper/plasia - excessive formation proto/plasm - original substance rhino/plasty - to shape the nose hemi/plegia - paralysis of one-half of body tachy/pnea - fast breathing hystero/ptosis - prolapse of uterus metro/rrhagia - hemorrhage from uterus hernio/rrhaphy - suture a hernia oto/rrhea - discharge from ear spleno/rrhexis - rupture of the spleen oto/scope - instrument to look in ears laryngo/scopy - visualization of larynx lyso/some - body that lyses/dissolves blepharo/spasm - twitching of eyelid hemostasis - control of bleeding hydro/therapy - treatment with water osteo/tome - instrument to cut bone laparo/tomy - to cut into the abdomen nephro/litho/tripsy - crushing stone in kidney hyper/trophy - overdevelopment hemat/uria - blood in the urine



### \*Define the following word parts:

PRE	FIXES:				
1.	a	6.	macr	11.	super
2.	dextr	7.	mal	12.	tachy
3.	eu	8.	neo	13.	dys
4.	hyper	9.	pleur	14.	peri
5.	intra	10.	sub	15.	anti
ROC	OT WORDS:				
1.			cyt		
2.	brachi		dors	12.	lapar
3.	cardi	8.	enter	13.	my
4.	cephal	9.	erythr	14.	neur
5.	cutan	10.	gastr	15.	oste
SUF	FIXES:				
1.	algia	6.	logy	11.	philia
2.	cide	7.	megaly	_12.	phobia
3.	ectomy	_8.	oma	13.	pnea
4.	edema	_ 9.	ostomy	_14.	scopy
5.	itis	10.	pathy	15.	uria
crea	ing the word parts from ate 5 words & write the o	definit			
2.					
3.					
4.					
5.					



## \*Define the following words:

1.	microcephalic	
2.	epidermis	
3.	sublingual	
4.	hydroencephaly	
5.	arthrocentesis	
6.	ophthalmologist	
7.	hypoglycemia	
8.	osteomalacia	
9.	rhinoplasty	
10.	laparotomy	
11.	chiromegaly	
12.	craniotomy	
13.	gastroscopy	
14.	gynecology	
15.	oogenesis	
16.	pathophysiology	
17.	pharyngitis	
18.	orchidectomy	
19.	arthritis	
20.	myocarditis	
**BOI	NUS - trichoglossia	trichothoracic