

Suffixes

Chapter Contents

1. Medical Terms
2. Suffixes
3. Focus on Reading
4. Vocabulary Development
 - Medical Collocations
 - Academic Words
5. Focus on Grammar
6. Case Reports
7. Oral Communication Skills
8. Focus on Writing
9. Pronunciation of Medical Terms
10. Review Exercises
11. Self- assessment

Learning Outcomes

At the end of this chapter, students are expected to be able to:

1. define a suffix
2. identify the functions of suffixes in medical terms
3. pronounce medical terms containing suffixes
4. use suffixes in medical terms
5. analyze medical terms into their components
6. write definitions of medical terms, diseases and medical procedures.
7. use the passive voice properly.

Suffixes

1 Medical Terms

It was mentioned earlier in Chapter 1 that medical terms may consist of prefixes, roots and suffixes. A **suffix** is a letter or a series of letters added to the end of a word to modify its meaning or to produce a new word (part of speech). A suffix, for example, can produce a noun or an adjective. It can also be used to form plurals from singular nouns. Furthermore, a suffix may be used to produce a noun that indicates a medical specialty, a medical specialist, a medical condition or state, a disease, a disorder, a diagnosis or a procedure.

Suffixes are essential components of medical terms. They are used in decoding the meanings of these terms that can usually be obtained by determining the meaning of the suffix first, to which the meaning of the prefix is added and finally the meaning of the root.

Combining forms

The following is a list of some combining forms to which a suffix can be added:

Combining form	Meaning	Example
abdomin/o	abdomen	abdominal
aden/o	gland	adenoma
adenoid/o	adenoid	adenoidectomy
adip/o	fat	adipocyte
adren/o	adrenal gland	adrenaline
albumin/o	protein	albuminuria
alg/o	pain	neuralgia
amni/o	amniotic fluid	amniocentesis
append/o	appendix	appendectomy
arteri/o	artery	arteriorrhaphy
atri/o	atrium, chamber	atriomegaly
axill/o	armpit	axillary
bacteri/o	bacteria	bacteriuria
bi/o	life	biopsy
blephar/o	eyelid	blepharoptosis
brachi/o	arm	brachial
bronch/o	Bronchial tubes	bronchoscopy
bucc/o	cheek	buccoocclusion

burs/o	pouch	bursitis
celi/o	abdomen	celiac
chem/o	chemical	chemotherapy
chol/o	gall, bile	cholelithotomy
cholecyst/o	gallbladder	cholecystectomy
chondr/o	Cartilage	hypochondriac
coccyg/o	Tailbone	coccygeal
colon/o	colon	colonoscopy
cry/o	cold	cryotherapy
cutane/o	skin	subcutaneous
dactyl/o	finger, toe	dactylospasm
dent/i	tooth	dentist
emphys/o	inflate	emphysema
endocrin/o	endocrine	endocrinology
esthesi/o	sensation	anesthesia
fibr/o	fiber	fibroma
foramin/o	foramen, opening	foramina
gangli/o	knot	ganglionectomy
ger/o	old age	geriatrics
gnath/o	jaw	prognathic
herni/o	hernia	herniotomy
hist/o	tissue	histology
hypn/o	sleep	hypnosis
hyster/o	womb, uterus	hysterectomy
ile/o	ileum	jejunioileostomy
isch/o	holding back	ischemia
inguin/o	groin	inguinal
jejun/o	jejunum	duodenojejunostomy
kary/o	nucleus	karyoclasia
lamin/o	piece of backbone	laminectomy
lip/o	fat	lipoma
lumb/o	lumbar region	lumbar
lymphaden/o	lymph node	lymphadenocoele
lymphangi/o	lymphatic vessels	lymphangiofibroma
mening/o	meninges	meningitis
Men/o	menses	Menorrhea
morph/o	form	morphus
myel/o	spinal cord, bone marrow	myelogram
narc/o	unconsciousness, stupor	narcolepsy
necr/o	death	necrosis
noct/i	night	noctalbuminuria

ocul/o	eye	ocular
oophor/o	ovary	oophorectomy
orchi/o	testis	orchialgia
parathyroid/o	parathyroid	parathyroid gland
ped/o	child, foot	pediatrics
pelv/o	hip area	pelvic
peritone/o	peritoneum	peritoneal dialysis
phon/o	sound	phonoscope
phot/o	light	photangiophobia
pleur/o	pleura	pleuritis
pulmon/o	lung	pulmonologist
reticul/o	net/network	reticulocyte
salping/o	fallopian tube	salpingectomy
septic/o	infection	septicemia
somat/o	body	somataesthesia
son/o	Sound	ultrasonography
spir/o	breathing	spirometer
splen/o	spleen	splenectomy
spondyl/o	vertebra	spondylitis
tonsill/o	tonsils	tonsillectomy
tympan/o	tympanic membrane	tympanoplasty

2 Suffixes

The following tables indicate the different types of suffixes and their meanings with examples.

Table 2.1 Suffixes for Medical Specialties

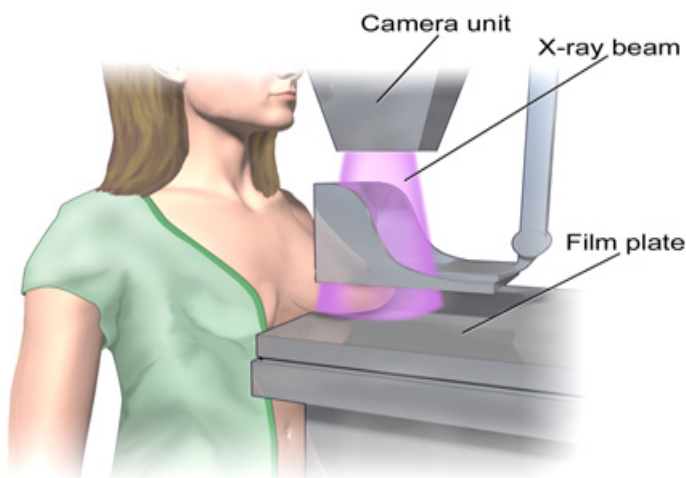
suffix	meaning	example	meaning
-ian	specialist in the field of study	optician	One who makes and fits corrective lenses for the eye
-ist	specialist in the field of study	anesthetist	A medical specialist who administers anesthesia
-iatrics	medical specialty	pediatrics	Care and treatment of children
-iatry	medical specialty	podiatry	Study and treatment of the foot
-ics	medical specialty	obstetrics	Study and treatment of childbirth
-logy	study of	neurology	Study of the nervous system

Practice 2.1: Identify the suffix in each of the following terms and write its meaning.

	suffix	meaning
1.	dermatologist	_____
2.	orthopedics	_____
3.	physician	_____
4.	gynecology	_____
5.	psychiatry	_____
6.	geriatrics	_____

Table 2.2 Suffixes for Diagnosis

suffix	meaning	example	meaning
-graph	instrument for recording data	electrocardiograph	instrument used to record the electrical activity of the heart
-graphy	act of recording data	echography	recording data obtained by ultrasound
-gram	a record of data	mammogram	record of the breast
-meter	instrument for measuring	thermometer	instrument for measuring temperature
-metry	measurement of	ergometry	measurement of work done
-scope	instrument for visual examination	bronchoscope	instrument for visually examining the bronchial tubes
-scopy	process of visually examining	esophagoscopy	visual examination of the esophagus (food tube)



Mammogram

Figure 2.1: mammogram. record of the breast

Practice 2.2: Match each term in Column A with its definition in Column B.

	A	B
1	microscope_____	a. instrument for recording many physiologic responses simultaneously
2	calorimeter_____	b. visual examination of the abdominal cavity
3	audiometry_____	c. instrument for examining very small objects
4	polygraph_____	d. measurement of hearing
5	celioscopy_____	e. instrument for measuring the caloric energy of food
6	electroencephalogram_____	f. record of the brain's electrical activity
7	echography_____	g. recording data obtained by ultrasound

Table 2.3 Suffixes for the Senses

suffix	meaning	example	meaning
-esthesia	sensation	dysesthesia	any impairment of the senses
-algnesia	pain	analgesia	absence of the sense of pain
-osmia	sense of smell	parosmia	a disorder of the sense of smell
-geusia	sense of taste	ageusia	Loss of the sense of taste

Table 2.4 Suffixes for Blood

suffix	meaning	example	meaning
-emia -hemia	condition of blood	hypoproteinemia polycythemia	- decreased protein in the blood - an abnormal increase in the number of red blood cells in the blood
-penia	decrease in	erythrocytopenia	deficiency of the red blood cells in the blood
-poiesis	formation, production	erythropoiesis	the production of red blood cells

Practice 2.3: Define the following terms:

1. erythremia _____
2. cytopenia _____
3. hemopoiesis _____
4. calcipenia _____
5. leukopenia _____
6. angiopoiesis _____
7. hepatoheemia _____

Table 2.5 Suffixes for Surgical Procedures

suffix	meaning	example	meaning
-centesis	Surgical puncture	thoracentesis	surgical puncture of the chest
-desis	fusion	arthrodesis	fusion of a joint
-ectomy	excision	appendectomy	excision of the appendix
-pexy	surgical fixation	gastropexy	surgical fixation of the stomach
-plasty	Surgical repair	rhinoplasty	surgical repair of the nose

-rhaphy	suture	arteriorrhaphy	suture of an artery
-stomy	opening to the outside of the body, communication	tracheostomy, colocolostomy	opening of the windpipe to the outside of the body, communication between two unconnected parts of the colon
-tome	instrument to incise	microtome	instrument for cutting thin sections of tissue for microscopic study
-tomy	incision	cystotomy	incision of the urinary bladder
-tripsy	crushing	lithotripsy	crushing of stones

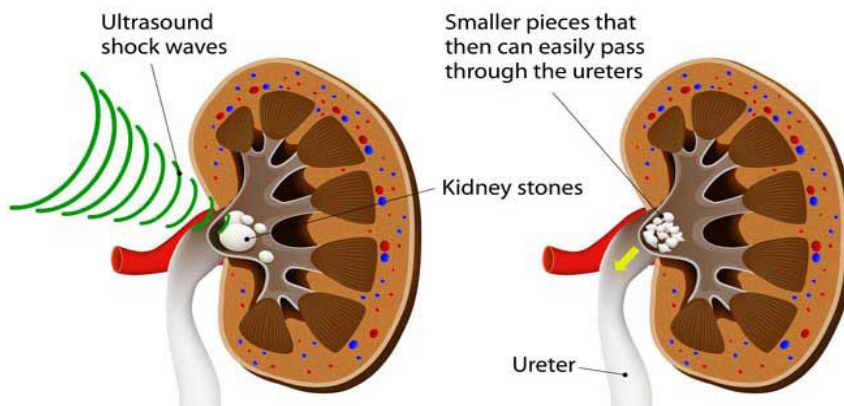


Figure 2.2: lithotripsy: crushing of a stone

Practice 2.4: The root *hepat/o* means *liver*. Use this root to form a word that means each of the following by adding an appropriate suffix.

1. incision into the liver _____
2. surgical repair of the liver _____
3. surgical fixation of the liver _____
4. excision of liver tissue _____
5. hernia of the liver _____
6. downward displacement of the liver _____

Table 2.6

Suffixes for Drugs

suffix	meaning	example	meaning
-lytic	dissolving, reducing	thrombolytic	agent that dissolves a blood clot
-mimetic	simulating	sympathomimetic	mimicking the effects of the sympathetic nervous system
-tropic	acting on	psychotropic	acting on the mind

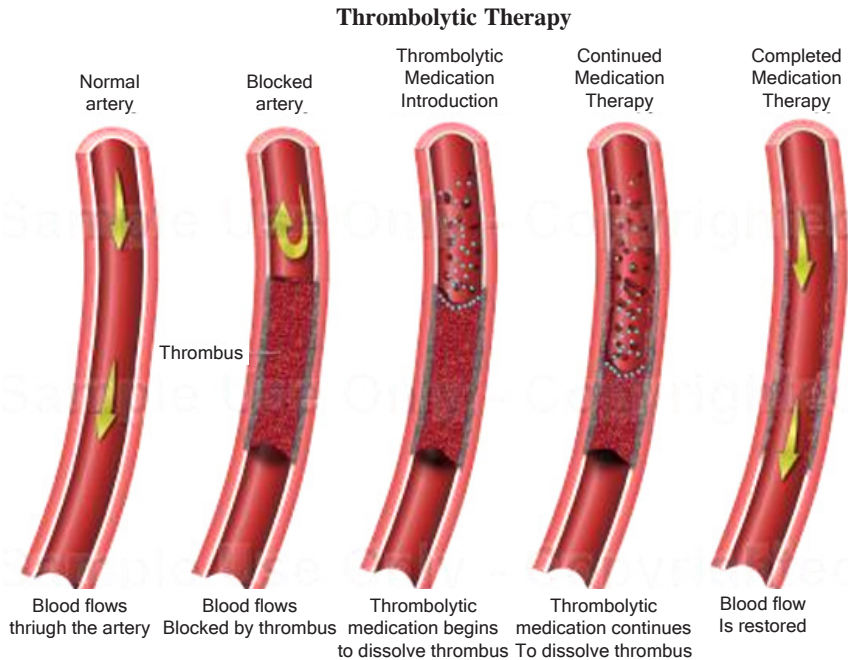


Figure 2.3: thrombolytic (agent that dissolves a blood clot): five enlarged cut-away views of a section of a generic artery with the anterior wall of these vessel segments cut away.

Practice 2.5: Identify the suffix in each of the following terms and write its meaning.

	suffix	meaning
1. anxiolytic	_____	_____
2. chronotropic	_____	_____
3. parasympathomimetic	_____	_____
4. somatotropic	_____	_____
5. neuromimetic	_____	_____

Table 2.7 Suffixes for the Nervous System

suffix	meaning	example	meaning
-phasia	speech	aphasia	lack of speech
-lalia	speech	bradylalia	slowness in speech
-lexia	reading	dyslexia	difficulty in reading
-plegia	paralysis	quadriplegia	paralysis of four limbs
-paresis	partial paralysis	myoparesis	partial paralysis in muscle
-lepsy	seizure	narcolepsy	condition marked by sudden episode of sleep
-phobia	irrational fear	photophobia	fear of light
-mania	excited state, obsession	megalomania	exaggerated self importance



Figure 2.4: dyslexia: effects of dyslexia

Practice 2.6: Provide the correct medical term for each of the following definitions:

1. fear of being in public place _____
2. paralysis of the heart _____
3. uttering words that are different from those intended _____
4. compulsive use of obscene words _____
5. the irresistible urge to start fire _____

Table 2.8 Suffixes for the Eye and Vision

suffix	meaning	example	meaning
-opsia	vision	achromatopsia	color blindness
-opia	vision	diplopia	double vision

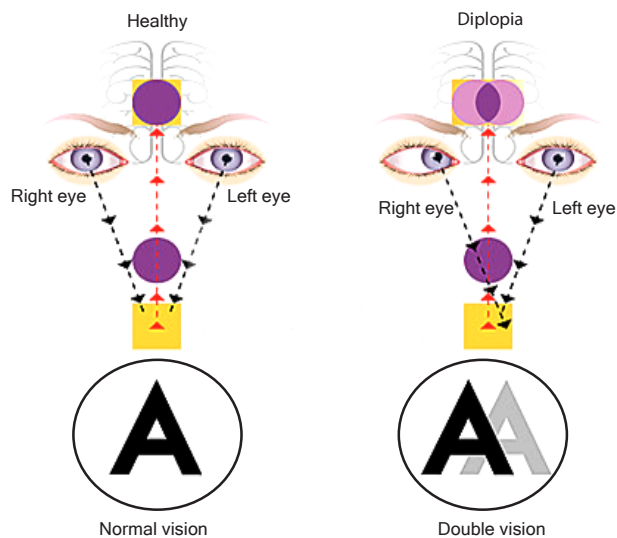


Figure 2.5: diplopia: double vision

Table 2.9 Suffixes for Respiration

suffix	meaning	example	meaning
-pnea	breathing	dyspnea	difficulty in breathing
-oxia	level of oxygen	anoxia	lack of oxygen in the tissue
-capnia	level of carbon dioxide	eucapnia	normal level of carbon dioxide in the tissue
-phonia	voice	aphonia	lack of voice

Practice 2.7: Define the following words:

1. eupnea

2. normocapnia

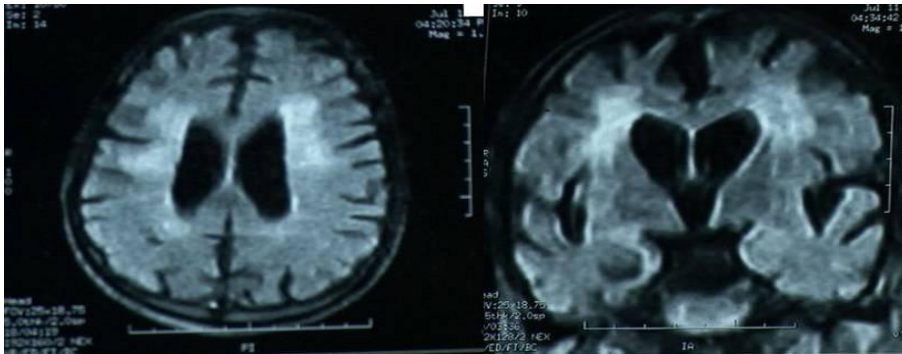


Figure 2.6: anoxia: progressive cerebral atrophy

Table 2.10 Suffixes for Body Chemistry

suffix	meaning	example	meaning
-ase	enzyme	amylase	an enzyme that digests starch
-ose	sugar	fructose	fruit sugar

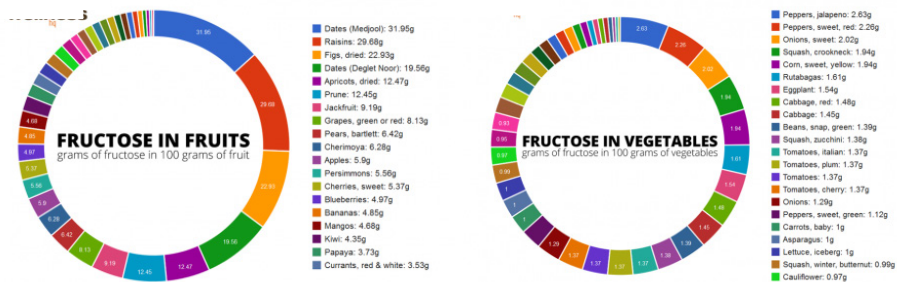
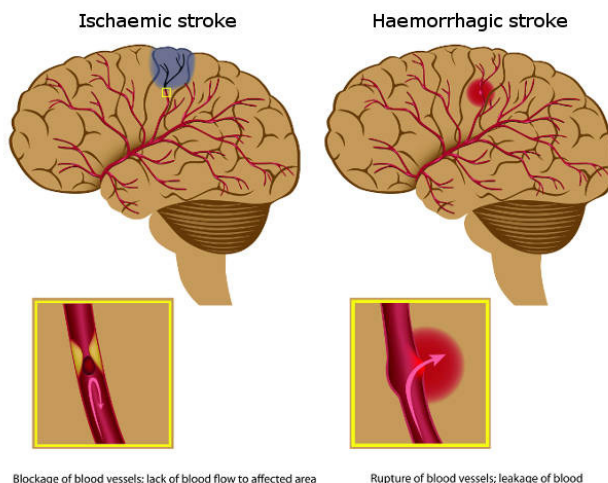


Figure 2.7: fructose: percentage of fructose in fruits and vegetables

Table 2.11 Suffixes for Diseases

suffix	meaning	example	meaning
-algia	pain	myalgia	pain in a muscle
-algesia	pain	analgesia	having no sensation / pain
-cele	hernia, localized dilation	hydrocele	local dilation containing fluid
-clasis, -clasia	breaking	osteoclasia	breaking of a bone
-itis	inflammation	encephalitis	inflammation of the brain
-megaly	enlargement	cardiomegaly	enlargement of the heart
-odynia	pain	urodynia	pain on urination
-oma	tumor	melanoma	tumor of pigmented cells
-pathy	disease	nephropathy	any disease of a kidney
-rhage, -rhagia	bursting forth, profuse flow	hemorrhage, menorrhagia	bursting forth of blood, excessive bleeding during menstruation
-rhea	flow, discharge	pyorrhea	discharge of pus
-rhexis	rupture	hepatorrhexis	rupture of the liver
-schisis	splitting, fissure	thoracoschisis	splitting of the chest

**Figure 2.8: brain stroke: types of stroke**

Practice 2.8: Match each of the following terms in Column A with its definition in Column B and write the appropriate letter to the right of the term in column A:

	A	B
1	karyoclasia _____	a. having watery stool through the rectum
2	cystitis _____	b. tumor of fat cells
3	gastrocele _____	c. hernia of the stomach
4	hepatomegaly _____	d. condition of having pain in a nerve

5	neuralgia_____	e. breaking of a nucleus
6	adenodynia_____	f. disease of the heart muscle
7	diarrhea_____	g. enlargement of the liver
8	cardiomyopathy_____	h. inflammation of the urinary bladder
9	lipoma_____	i. pain in a gland
10	amniorrhexis_____	j. splitting of the retina
11	retinoschisis_____	k. rupture of the amniotic sac

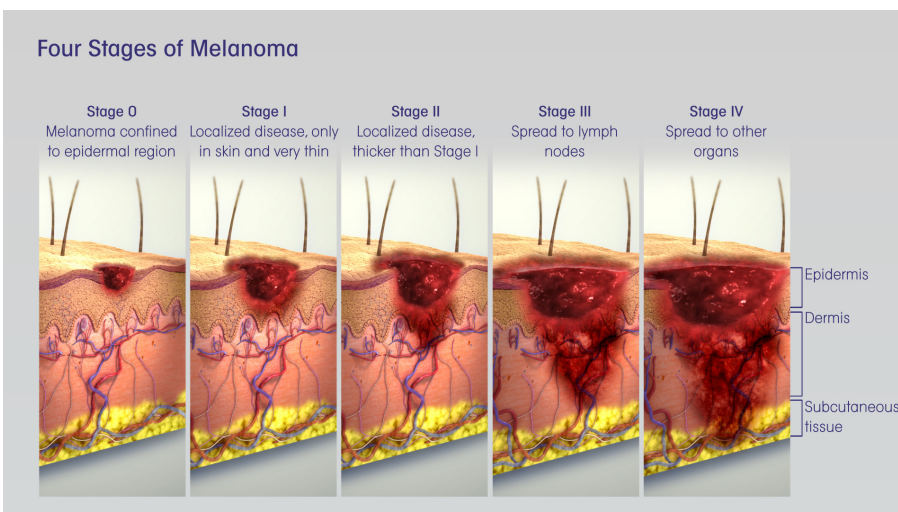


Figure 2.9: melanoma: the four segments of melanoma

Table 2.12 Words for Diseases Used as Suffixes

suffix	meaning	example	meaning
-dilation	expansion	vasodilation	widening of the blood vessels
-ectasia	distension, dilation	gastrectasia	dilation of the stomach
-edema	swelling	cephaledema	swelling of the head
-lysis	separation, destruction, dissolving, loosening	myolysis, hemo-lysis	dissolving of muscle, destruction of blood cells
-malacia	softening	craniomalacia	softening of the skull
-necrosis	death of tissue	cardionecrosis	death of heart muscle
-ptosis	drooping	splenoptosis	prolapse of the spleen
-sclerosis	hardening	arteriosclerosis	hardening of an artery
-spasm	sudden contraction	bronchospasm	sudden contraction of the bronchial tubes
-stasis	stoppage, suppression	menostasis	stoppage of the menstrual flow
-stenosis	narrowing, constriction	arteriostenosis	narrowing of an artery
-toxin	poison	nephrotoxin	substance harmful to the kidney

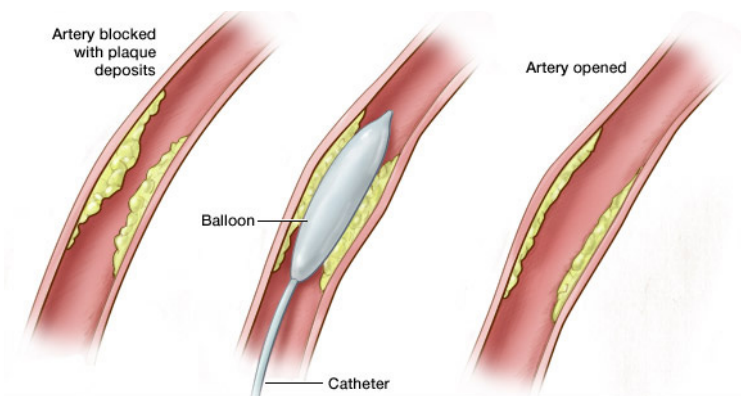


Figure 2.10: angioplasty: non-surgical treatment of blocked arteries in the legs

Practice 2.9: The root *arteri/o* means “artery.” Define the following words:

1. arteriosclerosis _____
2. arteriostenosis _____
3. arteriospasm _____
4. arteriomalacia _____

The following is a list of suffixes that may not be classified into specific categories.

Table 2.13 Mixed Suffixes

suffix	meaning	example	meaning
-ad	toward	cephalad	toward the head
-asthenia	weakness	neurasthenia	condition with vague symptoms
-blast	immature	astroblast	immature cell
-cidal	destroying	suicidal	likely to kill oneself
-crine	secreting	endocrine	gland that secretes hormone into the bloodstream
-crit	separate	hematocrit	percentage of volume of a blood sample that is composed of cells
-cyte	cells	thrombocyte	blood platelet
-dipsia	thirst	polydipsia	excessive thirst
-emesis	vomiting	hematemesis	vomiting of blood
-gen	producing	carcinogen	cancer causing agent
-globin	protein	hemoglobin	protein of red blood cells
-kinesia	movement	bradykinesia	decrease in movement
-lapse	fall	prolapse	falling forward
-mission	send	remission	Lessening of the symptoms of a disease
-mortem	death	postmortem	after death
-opsy	viewing	biopsy	cutting of living tissue to be viewed
-para	bearing	primipara	woman who is giving birth for the first time
-partum	birth	antepartum	before birth

-pepsia	digestion	dyspepsia	impaired digestion
-phagia	eating	polyphagia	excessive eating
-phasia	speech	aphasia	lack of speech
-pheresis	removal	leukapheresis	removal of leukocytes from drawn blood
-phil	attraction	cyanophil	element that turns blue after staining
-phoresis	carrying	electrophoresis	movement of particles into an electric field
-phoria	feeling	euphoria	feeling of well-being
-phrenia	of the mind	schizophrenia	common psychosis
-phylaxis	protection	prophylaxis	prevention of diseases
-physis	growing	epiphysis	part of a long bone growing out of the shaft
-plakia	plaque	leukoplakia	white patch in the mucous membrane
-plasia	formation	dysplasia	abnormal tissue formation
-porosis	lessening in density	osteoporosis	lessening of bone density
-stalsis	contraction	peristalsis	movement of the intestine by contraction and relaxation of its tube
-somnia	sleep	insomnia	lack of sleep
-stat	agent to maintain a state	bacteriostat	agent that inhibits bacterial growth
-tension	pressure	hypertension	high blood pressure
-therapy	treatment	radiotherapy	treatment by using radiation
-thesis	Put, place	prosthesis	artificial limbs added to the body
-tic	pertaining to	neoplastic	pertaining to new formation
-um	structure	periosteum	a structure surrounding a bone
-uria	urine condition	pyuria	pus in the urine
-version	turning	retroversion	a turning backward

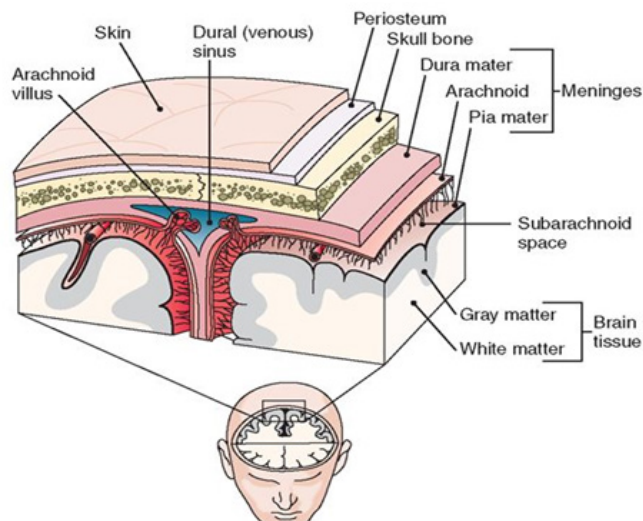


Figure 2.11: anatomy of the brain

Practice 2.10: Define the following terms:

1. pericardium _____
2. cryotherapy _____
3. dysphagia _____
4. osteocyte _____
5. exocrine glands _____

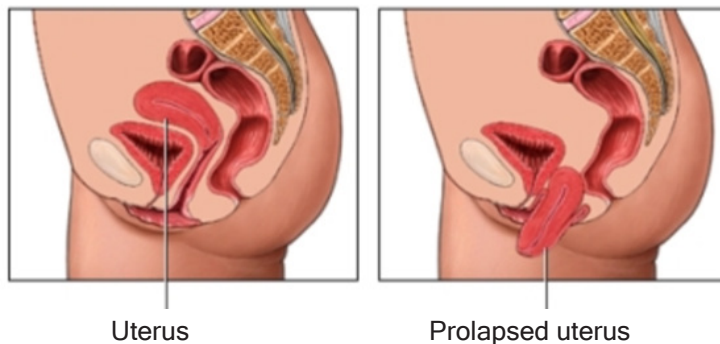


Figure 2.12: prolapse: uterine prolapse

Table 2.14 Terms using the suffix –ectomy (removal, excision)

medical term	meaning
appendectomy	excision of the appendix
adenectomy	excision of a gland
hepatectomy	excision of the liver
cholecystectomy	excision of the gallbladder
mastectomy	excision of a breast
hysterectomy	excision of the uterus
oophorectomy	excision of the ovary
laryngectomy	excision of the larynx
nephrectomy	excision of a kidney
colectomy	excision of the large intestine
tonsillectomy	excision of tonsils

Table 2.15 Terms using the suffix –itis (inflammation)

medical term	meaning
arthritis	inflammation of a joint
neuritis	inflammation of a nerve
esophagitis	inflammation of the esophagus
encephalitis	inflammation of the brain
osteitis	inflammation of bones
dermatitis	inflammation of skin

otitis	inflammation of ears
rhinitis	inflammation of the nose
bronchitis	inflammation of the bronchial tubes
myositis	inflammation of a muscle
phlebitis	inflammation of veins
meningitis	inflammation of the meninges
vasculitis	inflammation of blood vessels

Table 2.16 Terms using the suffix **–tomy** (incision, cutting into)

medical term	meaning
craniotomy	incision into the skull
laparotomy	incision into the abdomen
thoracotomy	incision into the chest
phlebotomy	incision into the vein

Table 2.17 Terms using the suffix **–therapy** (treatment)

medical term	meaning
cryotherapy	treatment using cold temperature
chemotherapy	treatment using drugs
radiotherapy	treatment using radiation

Table 2.18 Terms using the suffix **–graphy** (act of recording data)

medical term	meaning
electrocardiography	a procedure that records heart wave activity
electroencephalography	a procedure that records brain wave activity
electromyography	a procedure that records muscle activity
angiography	a procedure that records blood vessels wave activity
mammography	a procedure that records breast wave activity
electrocraniography	a procedure that records skull wave activity

Table 2.19 Terms using carcinoma (cancerous tumor of epithelial tissue)

medical term	meaning
basal-cell carcinoma	a slow-growing, locally invasive, but rarely metastasizing neoplasm of the skin derived from basal cells of the epidermis or hair follicles.
cervical carcinoma	cancer of the cervix (neck of the uterus).
chondrocarcinoma	a malignant cartilaginous tumor of the epithelium
mammary carcinoma	cancer of the breast
pancreatic carcinoma	the presence of a malignant tumor in the pancreas
osteocarcinoma	the presence of a malignant tumor in bones
colorectal carcinoma	a malignant epithelial tumor arising from the colonic or rectal mucosa

Table 2.20 Terms using sarcoma (cancerous tumor of fleshy tissue)

medical term	meaning
adenomyosarcoma	malignant renal tumor of young children characterized by hypertension and blood in the urine and the presence of a palpable mass
cholangiosarcoma	sarcoma of bile duct origin.
esophageal osteosarcoma	cancerous tumor of the esophagus
fibrosarcoma	a form of malignant tumor derived from fibrous connective tissue
osteogenic sarcoma	malignant bone tumor; most common in children and young adults where it tends to affect the femur
chondrosarcoma	a malignant cartilaginous tumor that most frequently invades the long bones, pelvis, and the scapula.
liposarcoma	a cancerous growth of primitive fat cells
myosarcoma	sarcoma of muscle tissue
Ewing's sarcoma	a malignant stem-cell bone tumor, usually occurring in the leg or pelvis of children and young adults,
alveolar Rhabdomyosarcoma	a highly malignant neoplasm derived from striated muscle
lymphosarcoma	a malignant disease of the lymphoid tissues characterized by proliferation of atypical lymphocytes and their localization in various parts of the body

3 Focus on reading

Read the following text and answer the questions following it.

Migraine

1. Millions of people all over the world suffer from periodic headaches that can be mild or severe. These headaches are now referred to as migraine. This painful headache may be accompanied or preceded by a number of symptoms, including tingling in the arms and legs, vomiting, nausea and sensitivity to light and sound. The pain that migraine causes may last for hours, days or even weeks and it can be moderate or severe in one side of the head. No definite etiology has been reported for such painful headaches.
2. Methods of treating migraine differ from one sufferer to another since different people respond differently to various treatment methods. Some doctors believe that changing lifestyle, getting an adequate amount of sleep, avoiding stress, practicing physical exercises regularly, drinking plenty of water and avoiding foods that may stimulate headaches may alleviate pain.
3. Research in migraine etiology and treatment has been going on for a long time. Neurologists recently found that a hypersensitive nerve system causes the pain in the head, and they are currently testing new drugs that may suppress the active cells that may lead to headaches. Neurologists believe that these medicines are expected to preclude the painful headaches prior to their occurrence. If they prove to be effective the way they did in the experiments conducted so far, a great number of migraine cases may disappear.
4. David Dodick, the president of the International Headache Society, holds that these medications will revolutionize the methods of migraine treatment. In general, migraine may last from 4-72 hours. Most migraine patients suffer from pe-

riodic attacks during 14 or fewer days a month. However, patients with chronic migraine suffer from headaches for at least 15 days a month. Prior to migraine attacks, it is common for migraine patients to suffer from auras that may be manifest in mood changes, exhaustion, nausea, vomiting, perception of strange light, unpleasant smells, confusing thoughts or tearful eyes.

5. The symptoms of migraine have been identified a long time ago and different traditional methods of treatment have been tried, including bloodletting (removal of some blood from the vein of a patient as a treatment procedure), trepanning (making a hole in the skull) and cauterization of the scalp. Advances in the treatment of migraine symptoms continued in different parts of the world. At the beginning of the 20th century, researchers in the field started to examine the role of blood vessels in causing migraine pains, especially after observing the strong pulsing of the temporal arteries in migraine sufferers and the relief they felt after compressing the carotid arteries. Consequently, migraine headaches were primarily attributed to the dilation of the blood vessels of the brain.
6. This belief was later supported by the findings of a paper on the use of ergotamine tartrate. It was found that ergotamine tartrate could constrict blood vessels. Despite the fact that it had some side effects, including vomiting and drug tolerance, it was effective in stopping migraine attacks in some patients.
7. The dilation of the blood vessels (vasodilation) was not the only cause of migraine headaches. It was later discovered that cardiac patients reported that the beta blockers they were advised to take in order to slow down tachycardia reduced the frequency of migraine attacks. Moreover, migraine patients who took medications for epilepsy and depression, and those who used to take Botox injections for cosmetic purposes also reported relief. Therefore, in the treatment of migraines, neurologists started to borrow drugs used in the treatment of other diseases. Unfortunately, the reason why those drugs were partially effective in reducing migraine attacks remained a mystery. Some neurologists believe that those drugs affect various levels of the patient's brain and brain stem in order to alleviate the excitability of the cortex and the pathways that transmit pain.
8. The previous migraine drugs were partially effective and most of them had undesirable side effects. The first specific drugs for the treatment of migraine were the triptans which were introduced in the 1990s. Richard Lipton, director of the Montefiore Headache Center in New York City, states that these drugs were developed in order to reduce the dilation of the blood vessels that was thought to cause migraine. It was found that the triptans disrupt the transmission of pain through the pain pathways and constricting blood vessels was not necessary to prevent migraine attacks. However, those drugs worked. Lipton added that the triptans were used to prevent migraine attacks and they have become a reliable medication.
9. Some headache specialists like Goadsby, director of the Headache Center at the University of California, San Francisco, are aware of the fact that triptans cannot prevent migraine attacks from happening in the first place. Research that aims at developing effective drugs to prevent migraine attacks is still underway. (Adapted from *Scientific American*, Nov 17, 2015)

A. Circle the letter of the correct answer.

1. Which of the following best expresses the main idea of the passage?
 - A. Migraine attacks affect millions of people worldwide
 - B. The drugs used to treat migraine in the 20th century.
 - C. The attempts of specialists to develop drugs to treat migraine headaches.
 - D. The causes of migraine headaches.

2. In paragraph 3 line 6, the underlined word they refers to _____.
 - A. medicines
 - B. active cells
 - C. painful headaches
 - D. neurologists
3. The word 'chronic' means _____.
 - A. acute
 - B. lasting
 - C. sporadic
 - D. occasional
4. Traditional treatment of migraine involved _____.
 - A. removing blood from the vein
 - B. trepanning
 - C. cauterization
 - D. all the above
5. Chronic migraine patients suffer _____.
 - A. from 4 to 72 hours
 - B. for a maximum of 10 days a month
 - C. for at least 15 days
 - D. less than patients with sporadic headaches
6. The cause of migraine headache pains in the early 20th century was attributed to: _____.
 - A. observation of strong pulsing
 - B. blood vessel dilation
 - C. compression of carotid arteries
 - D. blood vessel constriction
7. The drugs that neurologists "borrowed" for the treatment of migraine headaches were initially prescribed for _____.
 - A. rapid heart rate
 - B. epilepsy and depression
 - C. cosmetic purposes
 - D. all the above
8. Scientists found out that the triptans _____.
 - A. disrupt the transmission of pain signals in the brain
 - B. constrict blood vessels
 - C. entirely prevent migraine attacks
 - D. aggravate the dilation of blood vessels

B. Find words in the text that mean:

1. A noun meaning 'expansion, widening'. (Para. 5)

.....

2. A verb meaning 'cause to happen'. (Para. 2)

.....

3. A verb meaning 'occur before'. (Para. 1)
.....
4. A noun meaning 'a warning sensation experienced before an attack of epilepsy or migraine'. (Para. 4)
.....
5. A verb meaning 'caused by'. (Para. 5)
.....
6. A noun meaning 'low mood and loss of interest in activity'. (Para. 7)
.....
7. A verb meaning 'the opposite of dilate'. (Para 8)
.....

C. Word Building: Complete the following table as required.

Verb	Noun	Adjective	Adverb
suffer		x	x
revolutionize			x
		specific	
respond			x
disappear			x
stimulate			x
suppress			x
remove			x
	tolerance		x

4 Vocabulary Development

Medical Collocations

Practice 2.11: Fill in the blank spaces with an appropriate preposition to form a collocation.

up	down	up	on	of
after	to	about	from	out

1. The patient complained _____ the noise in the ward.
2. She suffers _____ depression.
3. She complained _____ stiffness in the joints.
4. He must have picked _____ the disease when he was travelling in Africa.
5. When we told her that her father was ill, she knocked _____.
6. She broke _____ and cried as she described the symptoms to the doctor.
7. The nurse propped _____ the patient with pillows.
8. The nurses are looking _____ her very well.
9. The workers were exposed _____ dangerous chemicals.
10. They experimented _____ various ways of preventing the disease.

Practice 2.12: Fill in each blank spaces in the following sentences with the appropriate word from the box.

Alzheimer's disease	asthma	a cold	ill	serious head injuries
treatment	diet	lung cancer	AIDS	the baby

1. He must know something of dietetics. So, he must have a **balanced** _____.
2. Mariam was **taken** _____ the other day. She's in hospital. They're not sure what it is yet.
3. I got soaking wet and **caught** _____.
4. The health visitor advised the new parents to **burp** _____ after feeding.
5. Ali **contracted** _____ while he was working in Africa.
6. As soon as the patient reported severe side effects, the doctor **discontinued** _____.
7. My grandfather **developed** _____ and could no longer remember things or recognize people.
8. He has **suffered from** _____ all his life due to living next to volcanic areas.
9. She had a mammogram and was **diagnosed with** _____ and died a year later.
10. The driver **sustained** _____ in the crash.

Practice 2.13: Match each word in column A with its complement in column B:

(A)	(B)
1. detect _____	a. consciousness
2. ease _____	b. the rash
3. check _____	c. the wound
4. adjust _____	d. pathogens
5. inject _____	e. insulin
6. amputate _____	f. the dosage
7. regain _____	g. labor pains
8. probe _____	h. a finger
9. resist _____	i. my pulse
10. sooth _____	j. infection

Practice 2.14: What can the following words collocate with?

1. feel _____
2. insanitary _____
3. sprain _____
4. undergo _____
5. suppress _____
6. incipient _____

Academic Words

Study the following academic words.

Academic List 1

<i>Words</i>	<i>Definitions</i>
1. primary	most important
2. resident	one who lives in a particular place
3. compute	to calculate a result, answer, sum etc
4. conduct	to carry out a particular activity or process, especially in order to get information or prove facts
5. administer	to manage, organize, and control something and make sure it is dealt with correctly
6. perceive	to understand or think of something or someone in a particular way
7. restrict	to limit or put controls on the amount, size, or range of something
8. seek	to try to get or achieve something
9. appropriate	suitable for a particular time, situation, or purpose
10. maintain	to make something continue in the same way or at the same standard as before

Academic List 2

<i>Words</i>	<i>Definitions</i>
1. culture	bacteria or cells grown for medical or scientific use, or the process of growing them
2. conclude	to decide that something is true after considering all the information you have
3. resource	something such as a book, film, or picture used by teachers or students to provide information
4. feature	a part of something that you notice because it seems important, interesting, or typical
5. consequence	happening as a result of a particular event or situation
6. positive	a quality or feature that is good or useful
7. affect	to do something that produces an effect or change in something or in someone's situation
8. focus	to give special attention to one particular person or thing, or to make people do this
9. normalize	usual, typical, or expected
10. consume	to buy and use goods, services, energy, or natural materials

Practice 2.15: Match the words in column A with their definitions in column B by writing the letter of the correct answer next to the word in column A.

A	B
1. primary	a. happening as a result of a particular event or situation
2. consequence	b. to calculate a result, answer, sum etc
3. feature	c. to make something continue in the same way or at the same standard as before
4. focuses	d. suitable for a particular time, situation, or purpose
5. culture	e. a part of something that you notice because it seems important, interesting, or typical

6. appropriate	f. most important
7. restrict	g. to understand or think of something or someone in a particular way
8. perceive	h. to give special attention to one particular person or thing, or to make people do this
9. compute	i. to limit or put controls on the amount, size, or range of something
10. maintain	j. bacteria or cells grown for medical or scientific use, or the process of growing them

Practice 2.16: Complete each of the following sentences using the correct word from the box.

perceived	maintain	restrictions	conducting	residents
administered	primary	seek	appropriate	computes

1. Calcium is the _____ mineral needed for building and maintaining strong bones.
2. Firemen had to evacuate the elderly _____ of a local nursing home after smoke was seen coming from one of the rooms.
3. Our brain _____ millions of bits of information every second of every day.
4. The government is _____ tests of a drug that may prove useful in the fight against AIDS.
5. During the experiment, the drug was _____ to a monkey, and the results were studied.
6. Cigarette smoking is widely _____ as being the most serious health issue in society today.
7. _____ on tobacco advertising and sponsorship are key parts of a global treaty being organized by the World Health Organization to reduce smoking.
8. You should _____ a second opinion if you don't agree with what your doctor said.
9. Studies show that seven or eight hours of sleep a night are best in order to build, repair, and _____ the immune system
10. According to a recent study, televised violence suggests to young children that aggression is _____ in some situations.

Practice 2.17: Complete each of the following sentences using the correct word from the box.

positive	features	normalizes	concluded	affect
consumption	culture	consequence	focuses	resource

1. The bacteria _____ that we examined under the microscope was actually quite beautiful to look at.
2. The American Psychological Association has _____ that viewing violence on TV promotes aggressive behavior in children.

3. John Kennedy once said that the human mind is our fundamental _____.
4. The sharing of physical _____ by members of the same family creates what we commonly refer to as a family resemblance
5. Studies show that responses are strengthened when followed by a satisfying _____.
6. Along with a _____ attitude and a healthy diet, your fitness level plays a major role in how you feel.
7. It has now been shown that cigarette smokers _____ the health of those around them even if those people are not smokers themselves.
8. Tonight's program _____ on the difference between human and ape forms of intelligence.
9. Studies show that constant exposure to media content _____ violence, with the result that children come to believe that society is violent
10. The average daily _____ of salt in this country is much higher than recommended.

5 Focus on Grammar

The Passive Voice

The passive voice is often used when the doer/performer of the action is unknown, unimportant, or irrelevant to the matter at hand. It is also used when the agent/ doer is obvious, and when an impersonal tone is desirable. Passive constructions are frequently used in scientific, technical and medical texts especially in describing experiments and natural processes or phenomena. This section aims at enhancing the students' awareness of the forms and functions of the passive voice in medical English and research.

Examples

1. The procedure was repeated until there was certainty regarding the results. The problems encountered by the patients were caused by the bacteria.
2. The oxygen-enriched blood is distributed through the cardiovascular system to all tissues.
3. Bones are composed of minerals, organic matter, and water.
4. The protein concentration was determined and the amount of bound protein was quantified.
5. The patient was examined carefully.
6. Twelve hours after admission a baby was born.

Practice 2.18: Change the following sentences into the passive voice.

1. The skeletal-muscular system supports the body.
.....
2. A tough membrane covers most of the bone surface.
.....

3. The doctor performed an autopsy.
.....
4. We need the cooperation of several local GPs (general practitioners) to make the new scheme work.
.....
5. Someone brought this patient to hospital last night.
.....
6. We can see the beneficial effects of this drug after one week's administration.
.....
7. Recurrent attacks had troubled Jack throughout his life.
.....
8. The bacteriologist examined the contents of the bottle.
.....
9. People have built robots and used them to make surgical operations.
.....
10. Doctors prescribe certain pain killers to alleviate patients' pains.
.....

Practice 2.19: Write sentences using the passive voice. Start with the following prompts.

1. Vaccines are given to children at an early stage. _____
2. The laser _____
3. The heart _____
4. The patient _____
5. The nervous system _____
6. Diagnosis _____
7. Viruses _____
8. Medical instruments _____
9. Antibiotic drugs _____
10. The blood pulse _____

Practice 2.20: Read the comprehension passage again and find as many passive sentences as you can. Explain why the passive was used in each.

Practice 2.21: Read the following case report and answer the questions that follow.

6 Case Report

A woman in her 70s with Type II diabetes mellitus and hypertension presented to a hospital with shortness of breath and was found to have an acute infarction of the anterior wall of her heart. She developed several complications, including renal failure from a combination of cardiogenic shock and toxicity from the dye used for emergency catheterization of her heart.

Hemodialysis was started during hospitalization because of her renal failure. After spending almost a month in the hospital and developing severe deconditioning, she was sent to a sub-acute rehabilitation facility.

From there she requested to be transferred to the Mayo clinic sub-acute rehabilitation unit, where she spent several weeks. While she was there she was noted to have symptoms consistent with depression, as well as a prior history of a major depressive episode in 1994. Mirtazapine (Remeron) was started. Mirtazapine is a newer antidepressant which is structurally unrelated to other classes of antidepressants. The most common side effect is somnolence.

She was eventually transferred to a skilled nursing unit for another month of rehabilitation management of her medical conditions.

At last, she was discharged home to the care for her husband. One month or so after leaving the skilled nursing facility, she came to our outpatient clinic and requested “a top-to-bottom physical.”

At that time, she was taking Mirtazapine at 30 mg daily (usual dose 15 - 45 mg daily) with 11 other medications. She was very focused on trying to figure out a way to recover from her difficulty with walking. She was still participating in cardiac rehabilitation three mornings a week on the same days as receiving hemodialysis.

She scored 13 out of 30 on the Geriatric Depression Scale. A score greater than 10 suggests an increased risk of a Major Depressive Disorder (Yesavage et al., J Psych Res 1982).

At that visit, the medical team focused on the question of whether she would need to stay on hemodialysis long-term and eliminating unnecessary medications, especially psychotropic medications.

She returned to the clinic and had developed the sense that it was too hard to breathe, difficulty sleeping, fatigue, and poor appetite.

She was felt to have congestive heart failure based on these symptoms. Her hemodialysis regimen was adjusted, and thoracentesis was performed at the request of her cardiologist. Unfortunately, she ended up in a hospital briefly as a result of a fever she had right after the thoracentesis.

At a clinic visit to follow-up on her hospitalization she looked weaker, and she was admitted to the hospital for more aggressive treatment of her heart failure. There her dialysis regimen was again adjusted, such that 20 pounds of fluid were removed in the course of the first 10 days. It was also established at that time that she would require hemodialysis for the rest of her life.

When she returned to clinic for her post-discharge appointment, her heart failure seemed compensated and her depressed mood became more evident.

At this time, factors that were possibly contributing to her depressive symptoms included:

1. Medical illness: In this case her physical disability got complicated by cardiac and renal failure. Other causes such as hypothyroidism were excluded.
2. Other reasons for poor response to treatment were considered. Non-adherence to medication regimen was less likely, thus the question of whether the pharmacology of her antidepressant therapy was altered by her renal failure and dialysis became of interest.

Circle the best answer.

1. The -lysis in the word hemodialysis is a:

a. prefix	b. root
c. suffix	d. combining form

2. Which of the following words has a suffix that does not mean *condition of, state of or process*?
 - a. rehabilitation
 - b. antidepressant
 - c. carcinogenic
 - d. toxicity
3. The word cardiac refers to:
 - a. liver
 - b. kidney
 - c. heart
 - d. intestine
4. The adjective pharmacologic is derived from:
 - a. pharmacy
 - b. pharm
 - c. pharmacology
 - d. pharmaco
5. The suffix in the word ‘thoracentesis’ means:
 - a. rupture
 - b. surgical repair
 - c. suture
 - d. puncture to drain fluid from
6. “Hypothyroidism” has the suffix:
 - a. ism
 - b. thyroidism
 - c. idism
 - d. roidism
7. According to the case study, the term “for a sudden and brief but for short duration” is:
 - a. fatigue
 - b. depressive
 - c. acute
 - d. shock
8. The word *somnolence* in paragraph 3 means
 - a. sleepiness
 - b. sleeplessness
 - c. depression
 - d. complication
9. The word *adherence* in the last paragraph means
 - a. treatment
 - b. compliance
 - c. dialysis
 - d. weakness
10. Write a word from the case study that means the same as each of the following:
 - a. pertaining to the treatment of old people _____
 - b. pertaining to being produced in the heart _____
 - c. inserting a hollow tube in the body to diagnose heart disease _____
 - d. pertaining to having an altering effect on perception or behavior _____
11. Find words in the case study that collocate with each of the following words or phrases:
 - a. adhere to _____
 - b. physical _____
 - c. renal _____

- d. side _____
- e. recover _____
- f. admitted to _____
- g. adjust a _____

12. Which of the following terms is correctly spelt?
- | | |
|------------------|------------------|
| a. hemodialysise | b. homeodailysis |
| c. humeodialysis | d. hemodialysis |
13. Find a word in the case report that means specialist in a medical field
-
14. In your own words, not using medical terminology, briefly summarize the patient's history?
-
-
-

7 Oral Communication Skills

Practice 2.22: Summarize the case study by answering the following questions orally.

1. What is the patient's gender?
2. How old was the patient?
3. What was the patient problem when she presented to hospital?
4. When did the problem start?
5. What were the major symptoms of the patient's problem?
6. What medical procedures were performed to help the patient?
7. Was she prescribed any medicines?
8. Was she required to make any tests?
9. Was the patient discharged or admitted to hospital? Explain why?
10. Why did she need hemodialysis?
11. What happened to her in Mayo Clinic?
12. Name three types of treatment procedures the patient received.
13. What factors contributed to her depressive symptoms?
14. Define the terms: *hemodialysis* and *regimen*.

8 Focus on Writing

Definition

Healthcare professionals often need to define diseases, procedures, diagnostic techniques or drug administration methods. Definitions can be different kinds. They can be formal or short and informal. For instance, you can give a brief identification of a word's meaning, as dictionaries do. You might offer a synonym. You could say that *significant* means *important* and *shut* means *close*. An informal definition can also use a familiar word or phrase to explain an unfamiliar word or phrase. For example, you

could define a *myocardial infarction* as being a *heart attack* and *arthritis* as a *disease*.

A formal definition, on the other hand, follows a three step method, including the term, its class (the group or category of similar items), and the distinguishing characteristics (the essential qualities that set the term apart from all other terms of the same class).

A *chair* (term) is a piece of furniture (class) that has a frame, usually made of wood or metal, forming a seat, legs, and backrest and is used for one person to sit on (distinguishing characteristics).

Arthritis (term) is a disease (class) causing painful inflammation and stiffness of the joints (characteristics).

Practice 2.23: Complete the following chart of formal definitions.

Term	Class	Distinguishing Features
Diabetes mellitus	is a disease	in which body cells fail to use glucose effectively, leading to a range of conditions.
A poison	is a substance	that causes harm or death if it is eaten, drunk, inhaled or absorbed.
A physician		
An emergency room (ER)		
A (dental) implant		
MRI		

Practice 2.24: How many more general classes can you add to the following list?

tool, instrument, process, procedure, machine, term, piece of equipment,

Practice 2.25: Give examples of the following general classes:

Examples

Feeling: sadness, happiness, anger,...

laboratory test: _____

Disease: _____

Symptom: _____

Vital sign: _____

Diagnostic instruments: _____

Guidelines for Writing a Definition

- Avoid circular definitions, or using the term to define itself
Do not say: A **viral** infection is due to a **virus** attacking an organism.
- Avoid using the phrases 'is where' and 'is when'.
Don't say: keyhole surgery **is when** an endoscope and instruments are inserted through small incisions.
- Don't make your definition so narrow that it excludes facets of your topic. Stat-

ing that plagiarism is copying other people's work and claiming it as your own is true, but it excludes other instances of plagiarism.

- When defining a term, start with the material most relevant to identifying the term, rather than saving the best for the last.
- Be as accurate and complete as possible. Avoid irrelevant information. Present ideas clearly and coherently.
- Edit your writing so that errors do not distract the reader, or undermine your ideas.

Practice 2.26: Select a medical term pertaining to diseases, laboratory tests, diagnostic procedures, etc. and write an extended definition for this item.

9 Pronunciation of Medical Terms

The following are the medical terms introduced in this chapter. You are supposed to read them aloud as many times as you need to master their pronunciation. These medical terms are recorded on a CD to help you learn the correct pronunciation. In this activity, you are also required to give the meaning of each term in order to retain them active in your memory.

Read the following medical terms and know their meanings.

abdominal	bacteriostat	colorectal carcinoma
achromatopsia	bacteriuria	craniomalacia
adenectomy	basal-cell carcinoma	craniotomy
adenodynia	biopsy	cryotherapy
adenoidectomy	blepharoptosis	cyanophil
adenoma	brachial	cystitis
adenomyosarcoma	bradykinesia	cystotomy
adipocyte	bradylalia	cytopenia
adrenaline	bronchitis	dactylospasm
ageusia	bronchoscope	dentist
albuminuria	bronchoscopy	dermatitis
alveolar rhabdosarcoma	bronchospasm	dermatologist
amniocentesis	buccocclusion	diarrhea
amniorrhexis	bursitis	diplopia
analgesia	calcipenia	duodenojejunoscopy
anesthesia	calorimeter	dysesthesia
angiography	carcinogen	dyslexia
Angiopoiesis	carcinoma	dyspepsia
anoxia	cardiomegaly	dysphagia
antipartum	cardiomyopathy	dysplasia
anxiolytic	cardionecrosis	dyspnea
aphasia	celiac	echography
aphonia	celioscopy	electromyography
appendectomy	cephalad	electrocardiograph
arteriomalacia	cephaledema	electrocardiography
arteriorrhaphy	cervical carcinoma	electrocraniography
arteriosclerosis	chemotherapy	electroencephalogram
arteriospasm	choolangiosarcoma	electroencephalography
arteriostenosis	cholecystectomy	electrophoresis
arthritis	chondrocarcinoma	emphysema
arthrodesis	chondrosarcoma	encephalitis
astroblast	chronotropic	endocrine
atriomegaly	colectomy	endocrinology
audiometry	colocolostomy	epiphysis
axillary	colonoscopy	

ergometry
 erthrocytopenia
 erythemia
 erythropoiesis
 esophageal osteosarcoma
 esophagitis
 esophagoscopy
 eucapnia
 euphoria
 eupnea
 Ewing's sarcoma
 exocrine glands
 fibroma
 fibrosarcoma
 foramina
 fructose
 ganglionectomy
 gastrectasia
 gastrocele
 gastropexy
 geriatrics
 gynecology
 hematemesia
 hematocrit
 hemoglobin
 hemopoiesis
 hemorrhage
 hepatectomy
 Hepatohemia
 hepatomegaly
 hepatorrhesis
 herniotomy
 histology
 hydrocele
 hypertension
 hypnosis
 hypoproteinemia
 hysterectomy
 inguinal
 insomnia
 ischemia
 jejunoileostomy
 karyoclasia
 laminectomy
 laparotomy
 laryngectomy
 leukapheresis
 leukopenia
 leukoplakia
 lipoma
 liposarcoma
 lithotripsy
 lumbar
 lymphadenocoele
 lymphangiofibroma

lymphosarcoma
 mammary
 mammogram
 mammography
 mastectomy
 megalomania
 melanoma
 meningitis
 menorrhagia
 menostasis
 microscope
 microtome
 morpheus
 myalgia
 myelogram
 myolysis
 hemolysis
 myoparesis
 myosarcoma
 myositis
 narcolepsy
 narcolepsy
 necrosis
 neoplastic
 nephrectomy
 nephropathy
 nephrotoxin
 neuralgia
 neurasthenia
 neurimimetic
 neuritis
 neurology
 noctalalbuminuria
 normocapnia
 obstetrics
 ocular
 oophorectomy
 optician
 orchialgia
 orthopedics
 osteitis
 osteocarcinoma
 osteoclasia
 osteocyte
 osteogenic sarcoma
 osteoporosis
 otitis
 pancreatic carcinoma
 parasympathomimetic
 parathyroid gland
 parosmia
 pediatrics
 pelvic
 pericardium
 periosteum

peristalsis
 peritoneal dialysis
 phlebitis
 phlebotomy
 phonoscope
 photangiophobia
 photophobia
 pleuritis
 podiatry
 polydipsia
 polygraph
 polyphagia
 postmortem
 primipara
 prognathic
 prolapse
 prophylaxis
 prosthesis
 psychiatry
 psychotropic
 pulmonary
 pyorrhea
 pyuria
 quadriplegia
 radiotherapy
 remission
 reticulocyte
 retinoschisis
 retroversion
 rhinitis
 rhinoplasty
 salpingectomy
 schizophrenia
 septicemia
 somataesthesia
 somatotropic
 spirometer
 splenectomy
 splenoptosis
 spondylitis
 suicidal
 sympathomimetic
 thermometer
 thoracentesis
 thoracoschisis
 thoracotomy
 thrombocyte
 thrombolytic
 tonsillectomy
 tracheostomy
 tympanoplasty
 urodynia
 vasculitis
 vasodilation

Name: ID:

10 Review Exercises

A. Circle the letter of the correct answer.

1. Inflammation of the brain is
 - a. rhinitis
 - b. pleuritis
 - c. encephalitis
 - d. bronchitis
2. The separation of substances into their component parts is:
 - a. dialysis
 - b. analysis
 - c. hemolysis
 - d. paralysis
3. A benign tumor of muscle is a (an)
 - a. myoma
 - b. myeloma
 - c. myosarcoma
 - d. myocardial infarction
4. Enlargement of the liver is
 - a. hepatoma
 - b. hepatomegaly
 - c. hepatitis
 - d. hepatorraphy
5. An instrument to visually examine the gallbladder is called a(an)
 - a. cystoscope
 - b. arthroscopy
 - c. cholecystoscope
 - d. gastroscope
6. A suffix meaning a condition of hardening is
 - a. -centesis
 - b. -stomy
 - c. -plasty
 - d. -sclerosis
7. Disease of many nerves is called
 - a. polyneuropathy
 - b. neuropolypathy
 - c. pathypolyneuro
 - d. polypathy
8. Surgical repair of breast tissue is
 - a. mastectomy
 - b. mastitis
 - c. mammography
 - d. mammoplasty
9. Visual examination of the abdomen by making a small incision near the navel is called
 - a. laparoscope
 - b. laparotomy
 - c. mediastinoscopy
 - d. laparoscopy
10. Resection of the uterus is termed
 - a. oophorectomy
 - b. hysterectomy
 - c. urethrectomy
 - d. salpingectomy



11. The voice box is the
a. lynex
c. lyrenx
b. larynx
d. leymnx
12. Ven/o and phleb/o both mean
a. liver
c. kidney
b. blood
d. vein
13. Prediction about the outcome of treatment is
a. diagnosis
c. prognosis
b. thrombosis
d. psychosis
14. The endocrine gland located at the base of the brain is the
a. adrenal gland
c. prostate gland
b. thyroid gland
d. pituitary gland
15. Flexible connective tissue found between bones at joints is
a. skin
c. nervous tissue
b. muscle tissue
d. cartilage
16. A vague feeling of bodily discomfort is termed
a. anorexia
c. anesthesia
b. antisepsis
d. malaise
17. An early symptom of an illness is called
a. syndrome
c. prodrome
b. remission
d. relapse
18. Which term is not spelled correctly?
a. retinopathy
c. electrencephalo-
b. neuralgia
d. vasculitis
19. Surgical repair of the eardrum is called
a. otoplasty
c. somoplasty
b. auropasty
d. tympanoplasty
20. Eating foods high in cholesterol and fats can cause a collection of fatty plaque in arteries. This condition is known as
a. atelectasis
c. otosclerosis
b. atherosclerosis
d. nephrosis
21. Surgical repair of the eyelid is termed
a. valvuloplasty
c. blepharoplasty
b. acetabuloplasty
d. tympanoplasty



22. A specialist of the study of tumor is
a. oncologist
b. gynecologist
c. pathologist
d. gastroenterologist
23. What is the combining form for the word 'head' ____?
a. psych/o
b. cerebr/o
c. ophthalm/o
d. cephal/o
24. A condition in which blood is held back from an organ is
a. ischemia
b. uremia
c. hematuria
d. leukemia
25. Condition of having urea in the blood is
a. leukemia
b. ischemia
c. menorrhea
d. uremia
26. Excessive bleeding during menstruation is
a. hematology
b. hematuria
c. menorrhagia
d. uremia
27. A condition that lasts for a long time is called
a. acute
b. chronic
c. lateral
d. septic
28. Surgical puncture to remove the fluid from the chest is called
a. hysterotomy
b. thoracocentesis
c. oophorectomy
d. salpingectomy
29. Creation of a new opening from the windpipe to the outside of the body is
a. colostomy
b. pharyngotomy
c. tracheostomy
d. laparoscopy
30. Pertaining to new development or growth of abnormal tissue is
a. neoplastic
b. dysplasia
c. hypoplasia
d. hypertrophy

B. Indicate whether the statement is true (T) or false (F).

1. A new connection between two previously unconnected portions of the colon is called colocolostomy. ()
2. Death of cells is termed as necrosis. ()
3. Subtotal hysterectomy refers to the complete resection of the uterus. ()
4. Osteomyelitis is the inflammation of the bone and bone marrow. ()
5. Paralysis of four limbs is paraplegia. ()



6. Treatment by chemicals is radiotherapy. ()
7. Pertaining to under the cartilages of the ribs is hypochondriac. ()
8. Uremia is the abnormal condition of blood in the urine. ()
9. Inflammation of the urinary bladder is cholecystitis. ()
10. Acute appendicitis necessitates appendectomy. ()
11. A specialist in the disease of females is called gynecology. ()
12. Incision of a vein to withdraw blood is called phlebotomy. ()
13. A malignant tumor of epithelial tissues in the body is called adenocarcinoma. ()
14. Pertaining to the armpit is called axillary. ()
15. A specialist in the administration of agents that cause loss of sensation is termed anesthesiologist. ()
16. Visual examination of what is within an organ is called endoscopy. ()
17. An opening in the windpipe is termed pharyngostomy. ()
18. Treatment using chemicals is called chemotherapy. ()

C. Fill in the blanks with the correct medical term.

1. Surgical puncture to remove fluid from the sac surrounding the embryo is _____.
2. Incision of a vein to withdraw blood is _____.
3. Inflammation of the windpipe is called _____.
4. Related to the tailbone of the spinal column is _____.
5. Paralysis of the lower half of the body is _____.
6. A specialist who examines biopsies and dead bodies is called a _____.
7. Abnormal condition of blood clotting is _____.
8. Any disease of a kidney is _____.
9. Pertaining to a blood vessel is _____.
10. Record of the spinal cord is _____.

D. Give the meaning for the underlined term in each of the following sentences.

1. Above 50 per cent of children in the Sultanate are affected by atopic dermatitis.
2. A person with psychosis loses contact with reality and often shows dramatic changes in behavior. Psychoses can be caused by diseases affecting the brain.
3. a slender endoscope is inserted through an incision in the abdominal wall in order to examine the abdominal organs or to perform minor surgery.
4. a surgical technique for restoring normal blood flow through an artery narrowed or blocked by atherosclerosis is performed, either by inserting a balloon into the narrowed section and inflating it or by using a laser beam.
5. A surgical method of making an opening in the skull; sometimes performed on a fetus during a difficult birth is called cephalotomy.
6. A procedure for removing metabolic waste products or toxic substances from the bloodstream is done by dialysis.
7. The surgical procedure of guiding a hollow needle through the abdomen of a pregnant woman into the uterus and withdrawing a sample of amniotic fluid is the correct method for genetic diagnosis of the fetus.



8. Thoracentesis often provides immediate abatement of symptoms. However, fluid often begins to reaccumulate. A majority of patients will ultimately require additional therapy beyond a simple thoracentesis.
9. A recording of the electrical activity of the brain. It is used to diagnose abnormalities of the brain. The machine used to record an electroencephalogram is called an electroencephalograph.
10. There is a clear difference between pathologist and a coroner.

E. Give the meaning of each of the following terms:

1. Bronchitis _____
2. Encephalopathy _____
3. Blepharoptosis _____
4. Tympanoplasty _____
5. Necrosis _____
6. Hysterectomy _____
7. Colonoscopy _____
8. Neuralgia _____
9. Celiac _____
10. Craniotomy _____
11. Subcutaneous _____
12. Jejunioileostomy _____
13. Phonoscope _____
14. Ultrasonography _____
15. Dermatologist _____

F. Give the meaning of each of the following suffixes.

1. -pathy _____
2. -iatry _____
3. -ics _____
4. -gram _____
5. -meter _____
6. -osis _____
7. -ical _____
8. -ectomy _____
9. -rhaphy _____
10. -centesis _____
11. -logist _____
12. -sclerosis _____
13. -ptosis _____
14. -toxin _____
15. -cele _____
16. -rhagia _____
17. -odynia _____
18. -megaly _____
19. -edema _____
20. -tripsy _____



G. Circle the correct answer.

1. The suffix in the word insomnia is
a. in b. nia c. a d. ia
2. The suffix in sclerosis is
a. osis b. ros c. scler d. is
3. The adjective suffix in febrile is
a. e b. le c. ile d. brile
4. Cytogenesis is
a. formation of cells b. division of the nucleus
c. formation of proteins d. formation of fibers
5. A megakaryocyte is a cell with a large
a. membrane b. nucleus
c. cytoplasm d. wall
6. A histologist studies
a. genetics b. surgery
c. chemistry d. tissues
7. A fibroadenoma is a fibrous tumor of a(n).
a. muscle b. gland
c. heart d. skull
8. In adiposuria, the urine contains
a. sugar b. carbohydrate
c. protein d. fat
9. Macrosomia refers to a large
a. tooth b. gland
c. body d. nucleus
10. The suffix -ase indicates a(n).
a. sugar b. starch
c. cell d. enzyme
11. A lipase is
a. a carbohydrate that digests fat b. a fat that digests carbohydrates
c. an enzyme that digests fats d. a protein that digests cartilage
12. Death of tissue is termed
a. bruising b. bleeding
c. rupture d. necrosis
13. A toxin is a(n).
a. fever b. drug
c. poison d. test
14. A cancer of muscle or connective tissue is termed a(n).
a. epithelioma b. carcinoma
c. leukemia d. sarcoma
15. A hernia is
a. death of an organ
b. protrusion of an organ through an abnormal opening
c. constriction of a vessel or organ
d. twisting of a channel



16. Sepsis is caused by
a. fever
c. bleeding
b. inflammation
d. microorganisms
17. Adenopathy is
a. inflammation of a muscle
c. enlargement of a gland
b. any disease of the lungs
d. any disease of a gland
18. Arteriosclerosis is
a. softening of the arteries
c. hardening of the arteries
b. widening of the veins
d. narrowing of the vessels
19. Pain in the stomach is
a. gastrostenosis
c. gastrolithiasis
b. gastropyloric
d. gastralgia
20. In osteoclasia, a bone is
a. bent
c. broken
b. arthritic
d. disjunct
21. The suffix –odynia means the same as
a. oma
c. rhagia
b. itis
d. algia
22. The term hepatorrhexis describes
a. dropping of the liver
c. softening of the liver
b. enlargement of the liver
d. rupture of the liver
23. The suffix in seborrhea means
a. discharge
c. thinning
b. blockage
d. infection
24. In retinosis, the retina of the eye is
a. dislocated
c. healed
b. split
d. thickened
25. A word that means enlargement of the spleen is
a. splenomegaly
c. Splenitis
b. splenopathy
d. Splenorragia
26. Hepatomalacia is
A. hardening of the liver
C. rupture of the spleen
b. softening of the liver
d. hemorrhage of the liver
27. Tracheostenosis is
a. widening of the Trachea
c. narrowing of the throat
b. rupture of the windpipe
d. narrowing of the trachea
28. A word that means separation, dissolving, destruction is
a. ptosis
c. stasis
b. ectasia
d. lysis
29. A word for swelling caused by accumulation of fluid is
a. malacia
c. edema
b. stenosis
d. spasm
30. A synonym for dilatation is
a. lithiasis
c. necrosis
b. exacerbation
d. ectasia
31. In blepharoptosis, the eyelids
a. thin
c. harden
b. separate
d. droop



32. The word stasis means
a. profuse flow
c. swelling
b. spasm
d. stoppage
33. Cryotherapy is treatment with
a. drugs
c. cold
b. heat
d. radiation
34. A phonostethograph
a. records heat waves
c. releases air
b. measures energy
d. records chest sounds
35. A calorimeter
a. measure calories
c. generates calories
b. generates heat
d. is used to inspect internal organs
36. A radiograph is made with
a. light
c. sound
b. heat
d. x-rays
37. Laparoscopy is
a. suture of the abdomen
c. recording of abdominal sounds
b. examination of the abdomen
d. examination of the throat
38. Binding of pleural membranes is called
a. Pleurodesis
c. pleurometry
b. pleurectomy
d. pleurocentesis
39. Lithotripsy is
a. measurement of calculi
c. crushing of a stone
b. surgical removal of a stone
d. removal of calculi
40. Arthroplasty is
a. measurement of a joint
c. surgery on the ear
b. fusion of a joint
d. plastic repair of a joint
41. In gastropexy, the stomach is
a. widened
c. dilated
b. surgically fixed
d. stapled for weight loss
42. In a hepatorrhaphy, the liver is
a. divided
c. stained
b. drained
d. repaired
43. The ending in the word sympathomimetic means
a. enhancing
c. simulating
b. counteracting
d. ending
44. A hypnotic drug is one that
a. maintains wakefulness
c. induces sleep
b. reduces allergic responses
d. stimulates
45. Cardiopexy is
a. downward displacement of the heart
c. rupture of the heart
b. irregularity of the heartbeat
d. cardiomyopathy
46. A valvotomy is a(n).
a. flap of a valve
c. instrument for measuring a valve
b. instrument for incising a valve
d. cusp of a valve
47. Phlebectasia is
a. constriction of a vein
c. dilatation of a capillary
b. spasm of a vein
d. dilatation of a vein



48. Arteriosclerosis is
 a. widening of an artery
 c. shrinking of an arteriole
 b. growth of an artery
 d. narrowing of an artery
49. A lymphangioma is a(n).
 a. tumor of lymph nodes
 c. tumor of lymphatic vessels
 b. inflammation of lymphatic vessels
 d. removal of lymph nodes
50. Cytopenia is a(n).
 a. deficiency of cells
 c. distorted shape of cells
 b. excess of cells
 d. enlargement of cells
51. Erythropoiesis is
 a. formation of white cells
 c. destruction of red cells
 b. formation of red cells
 d. formation of platelets
52. The root in ischemia means
 a. holding back
 c. chemistry
 b. chemical
 d. lack of
53. Lymphopoiesis is
 a. formation of lymph
 c. destruction of lymphocytes
 b. formation of lymphocytes
 d. formation of macrophages
54. Thrombolysis is
 a. destruction of a blood clot
 c. formation of a blood clot
 b. measurement of clotting time
 d. formation of platelets
55. A cystocele is a(n).
 a. dilatation of the bladder
 c. dropping of the bladder
 b. shrinking of the bladder
 d. hernia of the bladder

11 Self-assessment

Check (✓) what you learned. If you need more information or practice, refer to the relevant section in the chapter.

- () I can define a suffix.
- () I can identify suffixes in medical terms.
- () I can differentiate between the suffixes that have the same function.
- () I can analyze medical terms into their constituents.
- () I can use suffixes in medical terms.
- () I can use certain medical collocations and academic words properly.
- () I can pronounce medical terms properly.
- () I can read medical texts for main ideas and details.
- () I can ask and answer questions pertaining to medical issues.
- () I can report medical cases orally.
- () I can spell the new medical terms in the chapter.

