ENGLISH FOR THE PURPOSE OF MEDICINE AND DENTISTRY

Textbook for English medium students

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
Харківський національний медичний університет

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АНГЛІЙСЬКА МОВА ЗА ПРОФЕСІЙНИМ СПРЯМУВАННЯМ (МЕДИЦИНА ТА СТОМАТОЛОГІЯ)

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E55 English for the purpose of Medicine and Dentistry : Textbook for English Medium students / I. V. Korneyko, V. B. Kalnytska, O. B. Petrova, H. V. Ovsiannikova. Kharkiv : KNMU, 2024. 160 p.

Understanding English professional terminology, using term elements borrowed from classical languages for analyzing/building the terms of Greek and Latin origin, is a necessary skill of a professional in the fields of medicine, dentistry, nursing and other related healthcare professions. This textbook intends to form the above-mentioned skills in English medium medical students. In addition, it will help to learn the language of anatomy, histology, microbiology, and physiology to support the prerequisite for English-medium studies. This manual can be used by medical students, postgraduates, and those who want to deepen their English language proficiency.

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Англійська мова за професійним спрямуванням (медицина та стоматологія) : підручник для здобувачів освіти англомовної форми навчання / І. В. Корнейко, В. Б. Кальницька, О. Б. Петрова, Г. В. Овсяннікова. Харків ХНМУ, 2024. 160 с.

Розуміння англійської фахової термінології, вміння аналізувати та будувати англійські терміни греко-латинського походження, використовуючи терміноелементи, є необхідною навичкою професіонала галузі медицини, стоматології, сестринської справи та інших фахів охорони здоров'я. Цей підручник допоможе здобувачам вищої медичної освіти, які навчаються англійською мовою, а також тим, для кого англійська мова є іноземною. Розраховано на студентів, аспірантів, та тих, хто бажає поглибити знання англійської мови в галузях, пов’язаних із медициною.

Foreword

The language of medicine and dentistry, historically established based on Latin, along with national medical vocabulary contains a great number of loanwords from Latin and ancient Greek. Word formation and specifically formation of medical terminology of Latin origin is of crucial importance for medical students. When you work in health care, it is important to understand the language of medicine. Doing so is vital to becoming an integral part of the team and is necessary to follow through on your job responsibilities. Being able to speak and understand this language enables you to do your job quickly and efficiently.

This textbook was designed as a book where you can practice word analysis by filling in answers and working through exercises to promote real understanding and retention of the medical words you need to know.

The content of the book is logically organized into three blocks. The general plan of the book is as follows: the first four units constitute the foundation of the book and introduce the overall approach to understanding the medical language. These units cover basic suffixes, prefixes, and combining forms, as well as terms involving the human body as a whole. Important terms are broken down, along with definitions and examples, supplying an understanding of how medical terms are put together.

Units 5 through 16 focuses on terminology related to the structure and functions of specific body systems (digestive, respiratory systems, etc.) on the grounds of known and new combining forms, providing definitions that help connect words to their meanings. Several learning aids are included in this workbook, such as simple anatomical diagrams and figures representing body parts or systems. Each unit ends with self-check exercises and keys aimed to induce you to compare, analyze, and realize your knowledge by the fulfillment of these tasks. Moreover, games, such as crossword puzzles and word search are included at the end of each unit to make learning fun and check your comprehension.

Units 17 through 20 deal with specialized areas of medicine – cancer medicine, medical imaging, pharmacology, and microbiology. At the end of the book, you will find the dictionary of combining forms and their meanings.

Every professional working in the healthcare industry – from first-year medical students to physicians – requires knowledge of the language of medical terminology. Using the features of this workbook you will be able to quickly and effectively perform your job and communicate with other health care professionals.

Units 1–4, and 6 were compiled by Iryna V. Korneyko, Units 8–12 – by Olha. B. Petrova, Units 15, 17–19 – by Hanna V. Ovsiannikova, Units 5, 7, 13, 14, 16, 20 – by Violeta B. Kalnytska.

How to work with the book

Units 1–4 cover general rules of term analysis. They open with an explanation of the rules followed by the list of prefixes, suffices, and combining forms. You can do these tasks using the knowledge obtained at school. Your teacher will check your work and answer all your questions. Each unit contains exercises that will help you to get the experience of understanding and building new medical words. Working with these units you will build a medical language vocabulary.

Units 5–16 discuss the terminology of the body systems. They begin with the tasks, which give an overview of the structure and function of the body system. This helps to associate the name of the organ with its location in the body. These tasks are to be done before the lesson using the recommended literature and sources of information. In class, you will discuss them with the teacher. This section is followed by a list of combining forms with blanks to correct the meaning, examples, pronunciation, or translation to your mother tongue. The numerous exercises will allow you to master and review the material of the unit.

Units 17–20 concentrate on special areas of medicine. They continue the general format of the previous units.

Each unit is concluded by tasks for self-assessment and keys. They will help you to prepare for the tests, which are written after mastering the material of each unit.

FURTHER READING:

Textbooks and Workbooks

Andersson D., Mastenbjörk M., Meloni S., et al. (2016) Medical Terminology: The Best and Most Effective Way to Memorize, Pronounce and Understand Medical Terms: Second Edition.

Andrea M. Nelson, Katherine Greene (2021) Medical Terminology for Healthcare Professions. University of West Florida Pressbooks.

Andrew Hutton (2020) Pocket Medical Terminology: 2nd Edition.

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Beverley Henderson, Jennifer L. Dorsey (2019) Medical Terminology For Dummies: 3rd Edition.

Danielle LaFleur Brooks, Dale Levinsky, Myrna LaFleur Brooks (2021). Exploring Medical Language: A Student-Directed Approach: 11th Edition.

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Merriam-Webster's Collegiate Dictionary, 11th Edition (2019).

Merriam-Webster's Dictionary and Thesaurus, Newest Edition, Mass-Market Paperback. Merriam-Webster (2020).

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Sean Webb (2022). Dorland's Dictionary of Medical Acronyms and Abbreviations (Dictionary of Medical Acronyms & Abbreviations).

The Merriam-Webster Dictionary, New Edition (2022).

Webster's Dictionary for Students, Sixth Edition, Newest Edition by Editors of Merriam-Webster and Merriam-Webster (2020).

Online resourses

Medical Dictionary https://www.merriam-webster.com/medical

Concise Medical Dictionary
https://www.oxfordreference.com/display/10.1093/acref/9780199557141.001.0001/acref-9780199557141

Taber's Medical Dictionary Online + App | Tabers.com

Medical Encyclopedia https://medlineplus.gov/encyclopedia.html
Plain Language Medical Dictionary https://apps.lib.umich.edu/medical-dictionary/

Dorland's Illustrated Medical Dictionary
https://www.dorlandsonline.com/dorland/home

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https://www.tabers.com/tabersonline/view/Tabers-Dictionary/767492/all/Medical_Abbreviations

Medical Dictionary of Health Terms Harvard health publishing
https://www.health.harvard.edu/a-through-c

Medical Dictionary https://www.merriam-webster.com/medical

NHS Health A to Z. http://www.nhs.uk/Conditions/Pages/bodymap.aspx

BBC Science: Human Body and Mind
http://www.bbc.co.uk/science/humanbody/body/factfiles/

UNIT 1
BASIC WORD STRUCTURE

Unit outline

I. Objectives of studying medical language
II. Word elements and word structure
III. Medical term analysis using basic word elements
IV. Combining forms, prefixes and suffixes
V. Practice
VI. Self-check

Unit objectives:

– define the basic parts of a medical term (root, suffix, prefix, combining form, combining vowel)
– learn to divide medical words into their parts;
– identify the basic parts of a medical term;
– learn basic combining forms and prefixes;
– use these combining forms, prefixes, and suffixes to build and analyze medical words;

Word Index

These are the words used to describe the parts of the human body. Read and use your dictionary to look up the meaning of the unknown words:

abdomen	be stored *v.*	digest *v.*
above	between	digestion
along	beyond	digestive juice
ankle	bile	digestive tube
anus	blood	digital
apex	body	dorsal part
area	brain	ear
arm	breast	elbow
back	buttocks	end part
be attached to *v.*	calf	entire
be composed of *v.*	cell	extending
be formed of/by *v.*	cheek	extremities
be included *v.*	chemical digestion	eye
belly	chest	face
belly button	chin	feeling
be located *v.*	come out *v.*	female
below	connect *v.*	finger
be produced by *v.*	contain *v.*	fleshy part
be secreted by *v.*`	control *v.*	food
be sent to the brain *v.*	curved	foot

forearm
forehead
front
gallbladder
genitals
glandular
hair
hand
head
hear *v.*
hearing
heart
heel
sole
hip
hollow
human body
inside
intestine
joint
keratin
kidney
knee
leg
liquid
liquid waste
liver
long tube
lower extremity (lower limb)
lower jaw
lower leg
main control center
male
mass
mechanical digestion
message
mouth
movement
muscular sac
nail
navel
neck
nerve
organ
organism
outer layer
outgrowth
outside
palm
part of the body
produce *v.*
protruding part
pump *v.*
put into
reproductive organ
see
shin
shoulder
side
similar
skin
slender jointed
stomach
substance
thigh
thin
thinking
thread
throughout the body
thumb
tissue
toe
torso
trunk
upper arm
upper limb
upper part of the body
urea
urine
vision
waist
walk *v.*
waste
watery fluid
without
wrist

I. Objectives of studying medical language:

1. To analyze words structurally
2. To correlate an understanding of word elements with the basic anatomy, physiology, and disease processes of the human body
3. To be aware of spelling and pronunciation problems

1. Work with a dictionary. Match a word from the list and its definition:
Blood, Bone, Brain, Cancer, Cell, Ear, Eye, Gland, Heart, Intestines, Joint, Kidney, Mouth, Nerve, Skin, Stomach, Tumor, Urine

– Red liquid that your heart pumps around your body
– A very serious disease in which cells in one part of the body start to grow in a way that is not normal

– Part of your body where two bones meet
– One of the thin parts like threads inside your body along which messages are sent to the brain
– The organ inside your body where food begins to be digested
– The organ of vision
– The organ of hearing
– One of the hard parts that together form the frame of the human body
– The natural outer layer of the human body
– The organ inside your head that controls how you think, feel, and move
– The smallest part of a living thing that can exist independently
– A mass of diseased cells in the body that have divided and increased too quickly
– The part of your face that you put food into, or which you use for speaking
– The organ in your chest that pumps blood through your body
– The liquid waste that comes out of your body when you go to the toilet
– The long tube that takes food from your stomach out of your body
– One of the two organs in your lower back that separate waste liquid from your blood and make urine
– An organ of the body, which produces substances that the body needs

2. Do the word search. Find 10 words denoting parts of the body:

A	E	B	S	B	I	N	T	E	S	T	I	N	E
E	A	F	K	F	C	H	K	C	I	C	O	E	A
B	R	A	I	N	K	A	C	L	A	A	F	R	L
G	D	G	N	E	H	E	N	G	E	T	Q	V	A
A	P	D	G	O	A	M	T	I	S	S	U	E	H
G	A	R	N	T	D	Q	S	P	D	U	F	S	I
D	D	F	H	E	A	R	T	D	U	A	V	A	U
I	A	S	R	Y	F	O	O	P	L	X	H	Z	R
D	T	A	H	E	K	F	M	O	U	T	H	R	I
N	M	S	R	Q	F	M	A	V	E	W	P	G	N
O	L	I	V	E	R	B	C	B	B	E	B	O	E
G	C	D	C	I	C	N	H	E	I	C	M	E	L

II. Word elements and word structure

Answer the questions:

What is a term?
What is a word root?
What is a prefix?
What is a suffix?
What is a combining vowel?
What is a compound word?

III. Medical term analysis using basic word elements

	carditis	
	Card	itis
Meaning	Heart	Inflammation
Word element	Word root	Suffix

Endocarditis			
	Endo	card	itis
Meaning	Within	Heart	Inflammation
Word element	Prefix	word root	suffix

Cardiology			
	Cardi	o	logy
Meaning	Heart	-	Study of
Word element	Word root	Combining vowel	Word root

Osteoarthritis				
	Oste	o	arthr	itis
Meaning	Bone			
Word element	Word root	Combining vowel	Word root	Suffix

Remember that each term means more than you can learn from its literary meaning but word analysis will help you to understand complex terminology easier.

Compare the meanings of the terms derived from the word-building elements and those described in ***Mosby's Medical Encyclopedia for Health***

Professionals

TERM	**LITERARY MEANING**	**ENCYCLOPEDIA DEFINITION**
Arthritis	Inflammation of the joint	any inflammatory condition of the joints, characterized by pain and swelling
Cardiology	Study of the heart	the study of the anatomy, normal functions, and disorders of the heart
Rhinitis	Inflammation of the nose	inflammation of the mucous membranes of the nose, usually accompanied by swelling of the mucosa and a nasal discharge. It may be complicated by sinusitis. Rhinitis may be acute, allergic, atrophic, or vasomotor

BASIC RULES

1. A **WORD ROOT** PROVIDES THE BASIC MEANING OF THE TERM.
EXAMPLE: *HEPAT* MEANS *LIVER* IN THE TERM *HEPATITIS (INFLAMMATION OF THE LIVER)*

2. A **PREFIX** APPEARS BEFORE THE WORD ROOT TO CHANGE THE MEANING.
EXAMPLE: ADDING OF PREFIX *HYPO* TO THE TERM *DERMIC* CHANGES THE MEANING FROM *PERTAINING TO THE SKIN* TO *PERTAINING TO BELOW THE SKIN*

3. A **SUFFIX** APPEARS AT THE END OF THE WORD.
EXAMPLE: IN THE TERM *HEPATITIS* SUFFIX *ITIS* WHICH MEANS *INFLAMMATION* IS ADDED TO THE ROOT *CARDI.*

4. A **COMBINING VOWEL** CONNECTS WORD ROOTS.
EXAMPLE: *LARYNG**O**SCOPE – O* CONNECTS TWO ROOTS: *LARYNG* AND *SCOPE* IN THE WORD MEANING *INSTRUMENT FOR VISUAL EXAMINATION OF THE LARYNX (VOICE BOX)*

5. A COMBINING FORM CONSISTS OF A WORD ROOT AND A COMBINING VOWEL.
EXAMPLE: *HEPAT + O = HEPATO* (A COMBINING FORM MEANING *LIVER*)

6. A **COMBINING VOWEL** IS NOT USED BEFORE SUFFIXES AND ROOTS BEGINNING WITH A VOWEL, BUT IS USED BETWEEN TWO ROOTS IN A COMPOUND WORD.

7. THE MEANING OF A MEDICAL TERM CAN BE DETERMINED BY STARTING WITH THE SUFFIX AND MOVING BACK TO THE BEGINNING OF THE WORD;
EXAMPLE: *HEPATITIS* MEANS *INFLAMMATION (ITIS*) OF THE *LIVER* (*HEPAT*)

IV. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

adeno-, arthro-, bio-, carcino-, cardio-, cephalo-, cerebro- , ciso-, crino- cyto-, dermo-, dermato-, electro-, encephalo- , erythro-, gastro-, geno-, gyneco-, hemo-, hemato-, leuko-, nephro-, neuro-, onco-, ophthalmo-, osteo-, patho-, physio-, psycho-, radio-, rhino-, scopo-, uro-, -ac, -al, -cyte, -emia, -gram, -ia, -ic, -ist, -it is, -logy, -oma, -osis, -tomy, -y, a-, an-, auto-, endo-, epi-, ex-, exo-, hyper-, hypo-, peri-

V. Practice

1. Complete the statements:

In addition to a combining form a … also may appear at the end of a word.
A combining form consists of a … and a ….
In the term *arthritis, arthr-* is a **...**
In the term *hypodermic, hypo-* is a …, *-ic* ….
In the term *arthritis,- itis* is a …

2. Define the word element:

Prefix, suffix, word root, combining form, combining vowel

Arthro-, cardi-, o, hypo-, derm-, -ic, -itis, hemo-, epi-, ophthalm-, -osis, osteo-, -al.

3. Match a combining form (A) and its meaning (B):

(A) Arthro-, electro-, dermo-, cardio-, nephro-, neuro-.

(B) Joint, heart, skin, electricity, artery, nerve, kidney

4. Analyze the words:

Dermatitis		
Word part		
Meaning		
Word element		

Pericarditis			
Word part			
Meaning			
Word element			

Nephrology			
Word part			
Meaning			
Word element			

Carcinogenic				
Word part				
Meaning				
Word element				

5. Divide the following terms into component parts. Give the meaning of the entire term:

adenoma, cerebral, pathogenic, hypogastric, leukocytic, rhinitis, carcinogenic, electroencephalogram, erythrocytosis, nephrologist, encephalopathy

6. Find the suffixes and give the meaning of the entire term:

nephritis, dermatosis, hematologist, dermatology, cardiology

7. Identify the prefixes and give the meaning of the entire term:

pericarditis; hypodermic; hyperemia; endocrine

8. Analyze the names of the fields of medicine. Build the names of the specialists in these fields:

Urology, Hematology, Oncology, Nephrology, Cardiology, Neurology, Dermatology, Radiology, Ophthalmology, Endocrinology

9. Give the meaning of the following combining forms:

Adeno; leuko; cephalo; arthro; cerebro; cyto; osteo; dermato; erythro; encephalo; bio; physio; patho; rhino; nephro; carcino; onco; tomy; gyneco.

10. Give the suffixes or combining forms for the following:

Inflammation; surgical removal; abnormal condition; science; blood condition; tumor; record; cell.

11. Give the prefixes for the following English words:

Surrounding; above; within; self; outside; out; no.

12. Build medical words:

blood tumor; inflammation of a gland; record of heart electricity; specialist in tumors; inflammation of bones and joints; science about the heart.

13. Unscramble the following to get some words mentioned in the unit. Write down the words you obtained:

1. The portion of the central nervous system that is the organ of thought and the central control point for the nervous system, is enclosed within the skull and is continuous with the spinal cord – NBARI
2. The tubular part of the digestive tract that extends from the stomach to the anus – TEINNSISET
3. Either of a pair of small organs in the body that takes away waste matter from the blood to produce urine – EDNKYI
4. A saclike expansion of the digestive tract of a vertebrate that is located between the esophagus and duodenum – HMTCAOS
5. An organ of the body that secretes (produces) liquid chemicals that have various purposes – DLGNA
6. A group of long, thin fibers (structures like threads) that carry information or instructions between the brain and other parts of the body – REVEN
7. A serious condition in which a person's joints become painful, swollen, and stiff – HRSTRAITI

8. Swelling of the lining of the nose - RIINITHS

9. The study and treatment of medical conditions of the heart CORAIYGDOL

10. One of the thick tubes that carry blood from the heart to other parts of the body – RTAREY

VI. Check yourself

Build medical words:

1. surgical cutting of the gland; 2 science about glands; 3. surgical cutting of the joint; 4. condition of absence of the brain; 5. pertaining to inside the heart, 6. pertaining to developing inside; 7. record of the heart; 8. science about the cells; 9. inflammation of the heart; 10. surgical cutting of the head.

Analyze the words:

11. dermic; 12. gastrotomy; 13. hematic; 14. hemarthrosis; 15. leukocytosis; 16. nephrocardiac; 17. neuritis; 18. pathology; 19. rhinoscopy; 20. psychologist.

UNIT 2
TERMS PERTAINING TO THE BODY AS A WHOLE

Unit outline

I. Levels of organism organization (cell, tissue, organ, system)
II. The terms describing position and direction
III. Combining forms, prefixes and suffixes
IV. Practice
V. Self-check

Unit objectives:

– to learn the terms which apply to the structural organization of the body;
– to become acquainted with the terms that describe positions, directions, and planes of the body;
– to learn new word elements and use them to build and understand the meaning of medical terms

Word Index

These are the words used to describe the body as a whole. Read and use your dictionary to look up the meaning of the unknown words:

activity	body organ	cell
anatomy	bone	cell membrane
artery	brain	chamber
biological unit	bronchus	chest cavity
bladder	cardiac (heart) tissue	chromosome
blood	cardiocyte	collection of cells
blood vessel	cardiopathy	combination
body function	cardiovascular system	conduct *v.*
body surface	cartilage	connective tissue

contain *v.*
contract *v.*
contraction
control *v.*
cover *v.*
cytochemistry
cytogenesis
cytologist
cytology
cytopathy
cytophysiology
cytoplasm
development
digestive system
digestive tract
DNA
duct
ear
embryo
embryocyte
embryogenesis
embryologist
embryology
embryopathy
envelope *v.*
epithelia
epithelial tissue
esophagus
exist *v.*
eye
fat
fill spaces
function
gallbladder
gastrocyte
gene
genetic material
gland
glandular cell
heart
hereditary characteristics
hereditary makeup
histochemistry
histocompatibility
histogenesis
histologist
histology
inner surface
internal environment
internal organs
intestine
jelly-like substance
joint
kidney
line
liver
living thing
lung
major
major types
multicellular
muscle
muscle cell
muscle tissue
musculoskeletal system
nerve
nerve (neural) tissue
nerve cell
nervous system
nervous tissue
neural
nucleus
organ
organ system
ovary
pancreas
particular function
perform complex functions
perform specific functions
produce blood cell
protect
protection
protoplasm
protoplasmic material
repair of tissues
reproduction
reproductive system
respiratory system
reticuloendothelia
secrete *v.*
set of organs
similar
skeletal tissue
skeleton
smooth tissue
specialized functions
spinal cord
stimulation
stomach
store *v.*
stretchy substance
structural unit
substance
surround *v.*
system
tendon
testis
tissue
trachea
transmit *v.*
ureter
urethra
urinary system
urinary tract
uterus
vein

I. Levels of organism organization (cell, tissue, organ, system)

1. Are the following statements true or false? Correct the false ones:

– The cell is a fundamental unit of every living thing.
– The cell membrane surrounds and protects the internal environment of the cell.
– The nucleus controls the work of the cell.
– There are 20 pairs of chromosomes within the nucleus of a cell.
– Cytoplasm is the material inside the nucleus that carries on the work of the cell.
– Mitochondria are responsible for the production of energy.
– All cells perform the same function in the organism.
– A tissue is a group of similar cells working together to do a specific job.
– Organs are structures composed of several kinds of tissue.
– The system is a group of organs working together to perform complex functions.

2. Learn the meaning of the words:

Cartilage – a strong stretchy substance that is around the joint in a person's or animal's body
Chromosome – one of several small bodies in the nucleus of a cell.
Cytoplasm – the jelly-like substance that surrounds the nucleus of a cell.
Gene – biological unit that transmits hereditary characteristics.
Membrane – the envelope surrounding a cell.
Muscle – one of the pieces of flesh inside your body that connects your bones.
Nucleus – the part of a cell that contains the genetic material.
Organ – a part of the body, composed of more than one tissue, that forms a structural unit responsible for a particular function (or functions).
Protoplasm – the material of which the living cells are made which includes the cytoplasm and nucleus.
Spine – backbone.
Tissue – a collection of cells specialized to perform a particular function.

3. Match the system and its organs. Use the words from the box:

Adrenal glands, arteries, bladder, bones, brain, bronchial tubes, cartilages, capillaries, esophagus, gallbladder, fallopian tubes, heart, intestines, mouth, joints, kidneys, larynx, ligament, liver, lungs, lymphatic vessels, muscles, nerves, nose, ovaries, pineal gland, pituitary gland, pharynx, pancreas, parathyroid gland, prostate gland, sebaceous gland, skin, spinal cord, spleen, stomach, sweat gland, tendons, testis, thyroid gland, thymus gland, trachea, ureters, urethra, uterus, vagina, veins.

System	Organs
Digestive	
Urinary	
Respiratory	
Reproductive	
Endocrine	
Nervous	
Cardiovascular	
Musculoskeletal	
Integumentary	

II. The terms describing position and direction

1. Work with a dictionary. Find the meaning of the following. Match the term and its definition:

Afferent, Efferent, Anterior, Posterior, Central, Deep, Superficial, Distal, Proximal, Inferior, Superior, Lateral, Medial

- In front of the body
- Pertaining to the center
- Away from the surface
- Away from the beginning of the structure
- Conducting toward a structure
- Pertaining to the head, situated above another structure
- Pertaining to the middle
- Away from the head, situated below another structure
- Pertaining to the beginning of the structure
- Conduction away from the structure
- Pertaining to the side
- Near the surface
- Back of the body

2. Study the abbreviations used instead of the terms describing position and direction. Look up their meaning in the list of abbreviations (see Appendix II):

AE, AK, ant, AP, BE, BK, LAT, lat, LLQ, lt, LUQ, PA, post, RLQ, rt, RUQ, U&L, U/L

III. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

adipo-, antero- , caudo-, cervico-, chondro, coccygo-, cranio-, disto-, dorso-, histo-, ilio-, karyo-, latero-, lumbo-, medio-, myo-, postero-, roximo-sacro-, spino-, spondylo-, thoraco-, ventro-, vertebra-, viscera-, inter-, -genesis, -oma, -ous

IV. Practice

1. Divide the words into word-building elements:

Cervical, coccygeal, cranial, histology, craniotomy, thoracotomy, intervertebral, spondylitis, visceral, spondylosis.

2. Build medical words:

Specialist in the study of tissues; pertaining to the skull; incisions into the chest; pertaining to the lower back, pertaining to under the stomach; pertaining to the neck; abnormal condition of the vertebra; pertaining to internal organs; pertaining to the side; pertaining to the middle; tumor of muscle; inflammation of skin.

3. Analyze the words:

adipogenic, chondrosis, craniocerebral, histic, iliolumbar, karyology, myogenous, spinal, thoracopathy, ventral

4. Give the opposites of the following terms:

deep, afferent, proximal, ventral, posterior, caudal

5. Name the positional and directional terms:

pertaining to the head; away from the beginning of a structure; conducting toward; conducting away from; in front of the body; away from the head; pertaining to the beginning of the structure; away from the surface; back of the body; pertaining to the side; near the surface; pertaining to the center; pertaining to the middle.

6. Each word has a mistake. Find and correct it.

Ofthalmology, hystology, lateric, spondylopathy, mioma, vertebropathy, cranotomy.

7. Fill in the gaps in the words:

____logy – science about tissues, ____pathy – disease of the cartilage, spondyl___ – inflammation of the vertebra, myo____ – tumor of the muscle, ____logy – science about life, ____ – pertaining to between vertebrae, cyto_____ – science about cells, thoraco___ – surgical cutting of the chest, ___pathic – pertaining to disease of the muscles, ventro___ – visual examinatin of the abdomen.

8. Match the terms and their encyclopedia definitions:

Cervical, Chondroma, Dermatitis, Encephalitis, Nephrology, Neurology, Osteochondrosis, Osteotomy, Spondylitis, Thoracotomy

- an inflammatory condition of the brain. The cause is usually an arbovirus infection transmitted by the bite of an infected mosquito, but it may be the result of lead or other poisoning or hemorrhage;
- inflammatory condition of the skin, characterized by erythema and pain or pruritus. Various cutaneous eruptions occur and may be unique to a particular allergen, disease, or infection. The condition may be chronic or acute; treatment is specific to the cause;

– the study of the anatomy, physiology, and pathology of the kidney;
– the field of medicine that deals with the nervous system and its disorders;
– sawing or cutting of a bone. Kinds of osteotomy include block osteotomy, in which a section of bone is excised, cuneiform osteotomy to remove a bone wedge, and displacement osteotomy, in which a bone is redesigned surgically to alter the alignment or weight-bearing stress areas;
– of or pertaining to the neck or the region of the neck;
– a disease affecting the ossification centers of bone in children, initially characterized by degeneration and necrosis, followed by regeneration and recalcification;
– an inflammation of any of the spinal vertebrae, usually characterized by stiffness and pain. The condition may follow traumatic injury to the spine, or it may be the result of infection or rheumatoid disease;
– a surgical opening into the thoracic cavity;
– a benign, fairly common tumor of cartilage cells that grows slowly within cartilage (enchondroma) or on the surface (ecchondroma).

9. Unscramble the following to get some words mentioned in the unit. Write down the words you obtained:

1. A type of strong tissue found in the joints and other places such as the nose, throat, and ears – TERCGLAIA

2. An organ like a bag inside the body of a person or animal, where urine is stored before it leaves the body – LDBDEAR

3. A very thin tube, especially one of the smaller tubes that carry blood around the body – LPRACYALI

4. A tough fibrous band of tissue connecting the articular extremities of bones or supporting an organ in place – LNIMEATG

5. An organ in the body that produces insulin (a chemical substance that controls the amount of sugar in the blood) and substances that help to digest food so that it can be used by the body for various purposes – ERAACPSN

6. A strong piece of tissue in the body connecting a muscle to a bone – NOETDN

7. A membranous muscular sac in which bile from the liver is concentrated and stored before being passed to the intestinal duodenum – BLDLALARDGE

8. An organ that is located in the left abdominal region and is concerned with the final destruction of red blood cells, filtration and storage of blood, and production of lymphocytes – NEPSEL

9. The upper part of the trachea that contains the vocal cords – NYALXR

10. The tube in the body that takes food from the mouth to the stomach – GUSHAPOES

V. Check yourself

Build medical words:

1. tumor of fatty tissue; 2. surgical cutting of the cartilage; 3. pertaining to the back; 4. pertaining to tissue development; 5. pertaining to the lower back; 6. disease of the heart muscle; 7. pertaining to the sacrum and ilium; 8. surgical cutting of the sacrum; 9. inflammation of joints of the spine; 10. pertaining to the chest.

Analyze the words:

11. transthoracic; 12. ventrotomy; 13. viscerogenic; 14. myopathy; 15. medial; 16. lateral; 17. cervical; 18. superficial; 19. anterior; 20. posterior.

UNIT 3
SUFFIXES AND FINAL COMBINING FORMS

Unit outline

I. Terminology
II. Combining forms, prefixes and suffixes
III Plural forms of medical words
IV. Practice
V. Self-check

Unit objectives:

- to learn new medical words;
- to learn new word-building elements;
- to become acquainted with plural forms of medical words.

I. Terminology

Use the dictionary and match the terms with the definitions:

Abdomen	Area of the body between the diaphragm and pelvic bones
Artery	Bulging out of a part of any of the internal organs through a weak area in the muscular wall
Colon	Spongy porous material found in the center of a bone
Hernia	Smooth membrane that lines the abdominal cavity and part of the pelvic region
Larynx	The voice box, the passageway connecting the pharynx and trachea
Maxilla	Vessel which carries blood away from the heart
Marrow	Lowest six inches of the intestinal tract adjoining the anus
Peritoneum	Mass of special lymph tissue located in the pharynx
Rectum	Blood vessels carrying blood to the heart
Tonsil	Large intestine
Trachea	Windpipe
Vein	Bone of the upper jaw

II. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

abdomino-, acro-, arterio-, carcino-, colo-, dactylo-, hepato-, hydro-, ischo-, laparo-, laryngo-, litho-, morpho-, muco-, myelo-, necro-, oto-, peritoneo-, phago-, pneumo-, recto-, tracheo-, tonsillo-, veno-, -algia, -cele, -centesis, -dynia, -ectomy, -graph, -graphy, -lysis, -malacia, -megaly, -oid, -ole, -pathy, -penia, -pexy, -philia, -phobia, -plasia, -plasty, -poiesis, -ptosis, -sclerosis, -scope, -stasis, -stomy, -therapy, -tome, -trophy, -ule

III. Plural forms of medical words

Singular ending	Plural ending	Example
a	ae	Vertebra – vertebrae
ax	aces	Thorax – throraces
us	i	Fungus – fungi
um	a	Bacterium – bacteria
is	es	Diagnosis – diagnoses
ma	mas / mata	Carcinoma – carcinomas / carcinomata
on	a	Protozoon – protozoa
nx	nges	Phalanx – phalanges
ex	ices	Apex – apices
ix	ices	Appendix – appendices
en	ina	Lumen – lumina
ies	ietes	Paries – parietes

BUT: CORPUS – CORPORA, VIRUS – VIRUSES, ARCUS – ARCUS, IRIS – IRIDES, SINUS – SINUSES, APPARATUS – APPARATUS

IV. Practice

1. Write plural forms of the medical words:

Vertebra, bulla, areola, adnexum, sanatorium, diverticulum, nucleus, bacillus, coccus, crisis, metastasis, analysis, axis, apex, phenomenon.

2. Write singular forms of the medical words:

Bursae, aphthae, bacteria, ova, calculi, bronchi, anastomoses, epiphyses, prostheses, varices, ganglia, and spermatozoa.

3. Build medical words:

an instrument for visual examination of the larynx; pain in the fingers; enlargement of the liver; surgical repair of nerves; incision of the chest; deficiency of leukocytes; softening of the brain; one who specializes in the study of the eye; new opening of the kidney; fear of water; formation of erythrocytes; formation of bone; condition of hardening of arteries; fixation of the internal organs; removal of tonsils; resembling a stone.

4. Divide the words into word-building elements. Give the meaning of the terms:

Otitis, Arthropathy, Ischemic, Laryngectomy, Peritoneal, Hypertrophy, Otalgia, Cardiomegaly, Eosinophil, Hydrocele, Myeloid, Thrombocytopenia, Electroencephalography, Tracheostomy

5. Give the meaning of the following combining forms and suffixes:

-gram; -plasty; -osis; -itis; -genic; -graphy; -oma; -graph; -tome; -emia; -trophy; -tomy; -ectomy; -stomy; -megaly; -malacia; -poiesis; -centesis; -opsy; -pexy; -stasis; -therapy; -ptosis; -lysis.

6. Find and correct the mistakes:

Arteriosclerosis – softening of arteries, hematitis – inflammation of the liver, cephalalgia – pain in the neck, craniotomy – surgical removal of the skull, osteotome – surgical cutting of bones, laryngoscopy – instrument for visual examination of the larynx, hematophobia – fear of water, esophagotomy – new opening in the esophagus, intravenous – pertaining to within the artery, osteolysis – destruction of the brain; adenitis – inflammation of the stomach, histology – one who specializes in the study of tissues

7. Arrange the letters to build medical words:

TLRNGYIISA, HPRTRPHYYOE, NEIISOOPHL, IEISHMCC, ATOGIAL, ESISROERYTHPIO, IACTDALODYYN

V. Check yourself

Build medical words:

1. small artery; 2. visual examination of the abdomen; 3. cancerous tumor; 4. new opening in the colon; 5. enlargement of fingers; 6. liver cells; 7. hernia of the liver; 8. fixation of the internal organs; 9. pain in the liver; 10. condition of the low amount of water.

Analyze the words:

11. ischuria; 12. laparocentesis; 13. laryngotomy; 14. lithogenesis; 15. transabdominal; 16. mucoid; 17. myelogenesis; 18. necrotomy; 19. otoplasty; 20. hyperplasia

UNIT 4
PREFIXES

Unit outline

I. Terminology.
II. Combining forms, prefixes, and suffixes.
III. Practice.
IV. Self-check

Unit objectives:

- to learn basic prefixes used in the medical language;
- analyze medical terms that combine prefixes and other word elements.

I. Terminology

1. Study the terms:

Delivery – the process of giving birth to a child
Glucose – a natural form of sugar that exists in fruit
Mature – fully grown and developed. *Opposite*: **immature**
Pregnancy – the condition of being pregnant
Pregnant – having an unborn baby growing inside the body
Tongue – the soft, moveable part inside your mouth that you use for tasting, eating, and speaking
Ultrasound – sound that is too high for humans to hear, and is often used in medical practice

II. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

ciso-, glosso-, glyco-, morpho-, nati-, pneo-, sepso-, sono-, thyro-, topo-, -blast, -crine, -cyesis, -lysis, -meter, -orrhea, -partum, ab-, ad-, ante-, anti-, bi-, brady-, con-, contra-, dys-, ec-, ecto-, eu-, hemi-, in-, infra-, macro-, mal-, meso-, micro-, pan-, para-, per-, poly-, post-, pre-,pro-, pseudo-, semi, sub-, super-, supra-, sym-, syn-, ultra-, tachy-, trans-

III. Practice

1. Give the meaning of the prefixes:

Anti; pro; sub; con; meso; ab; peri; dys; para; retro; dia; pan; ante; contra; infra; inter; intra; hyper; in; poly; pseudo; mal; ultra; tachy; brady; eu; auto.

2. Divide medical words into word-building elements. Define the word-building elements. Match the words with their meaning:

Anticarcinogenic	a cut produced surgically by a sharp instrument creating an opening into an organ or space in the body
Apnea	an abnormal condition in which the second, third, and fourth digits on the same hand are missing, and only the first and fifth are represented
Bidactyly	prior to birth; occurring or existing before birth, referring to both the care of the woman during pregnancy and the growth and development of the fetus
Bradycardia	an abnormally large, mature erythrocyte that is commonly seen in megaloblastic anemias
Congenital	after childbirth
Dysfunctional	a circulatory condition in which the myocardium contracts steadily but at a rate of less than 60 contractions a minute
Sublingual	pertaining to a substance or device that neutralizes the effects of a carcinogen

Incision	an absence of spontaneous respiration
Macrocyte	unable to function normally
Prenatal	beneath the tongue
Postpartum	present at birth, as a congenital anomaly or defect

3. What prefix means the same as:

Per; hemi; contra; pre; con; infra; a, an; intra; ex; supra.

4. Find prefixes in the words and define their meaning. Give the meaning of the terms:

Transcostal, exocrine, chondrodystrophy, antiseptic, intravenous, pseudocyesis, abacterial, bilateral, bradypnea, semiliquid, hemiglossitis, inactive, maldevelopment, preoperative, pseudotumor, semihard, sublinguitis, ultrasound, dysglycemia, dystopia, hemialgia, macroblast.

5. Give the meaning of the following word-building elements:

-stasis; -meter; -scopy; -tome; -rrhea; -blast; -oid; -emia; -odynia; -ectomy; laparo; peritoneo; glosso; glyco; pneo; costo; sepso; nephro.

6. Fill in the gaps in the words:

Op__t__almologist – specialist in eye diseases; gl__col__sis – breakdown of glucose; __s__udo__ __esis – false pregnancy; m__cro__e__hal__ __– condition of large head; glos__al__ia – pain in the tongue; r__inor__ __ ea – running nose; __rad__ca__dia – slow heart beat; d__stro__ __y – bad norishment, s__b__ermal - pertaining to under the skin, p__r__t__ __roid – near the thyroid gland, __utro__ __y – normal nourishment, ant__n__tal – before birth, d__she__atopo__esis – bad development of blood.

7. Each instance has a mistake. Find and correct it:

Hypothorax – half of the chest; infravertebral – between vertebrae; macroorganism – minute living being; gnosalgia – pain in the tongue; hemilysis – breakdown of blood; endocrine – secreating outside; postoperative – pertaining to before operation; infravenous – pertaining to within the vein; cardiomalacia – enlargement of the heart.

8. Build medical words:

Small organism –; an instrument to measure glucose content –; pertaining to between vertebrae –; pertaining to above the stomach –; bad formation –; making a picture using ultrasound –; pertaining to under the tongue –; condition of a large amount of urine –; bad breathing –; condition of out of place –; pain in one half of the head –; surgical removal of half of the stomach –; condition of a large head –; small cell –; inflammation of the whole heart –; pertaining to near the kidneys –.

9. Unscramble the following to get some words mentioned in the unit. Write down the words you obtained:

1. Pertaining to across or through the rib – TONALRASTCS
2. A joint disease that involves at least five joints; presents one or more signs of inflammation, including pain, movement restriction, swelling, warmth, and redness in the joints involved – YIIOSLRARPHTT
3. A chemical used for preventing infection in an injury, especially by killing bacteria – IAEPNSTICT
4. Involving two groups, sides, or countries – BALTIELRA
5. Vibrations of the same physical nature as sound but with frequencies above the range of human hearing – UOTLSUDRNA
6. An opening that is made in something with a sharp tool, especially in someone's body during an operation – SINONIIS
7. Having two sides – BNLGSUAULI
8. Relatively slow heart action – DBARAYDIRCA
9. A fleshy movable muscular process of the floor of the mouth that functions especially in taking and swallowing food and as a speech organ –NETGOU
10. Synonym to gestation – PGRENYANC

IV. Check yourself

Build medical words:

1. condition of no skin; 2. pertaining to the opposite side; 3. bad nourishment; 4. pertaining to a half of the tongue; 5. condition of many fingers; 6. condition of small heart; 7. bad formation; 8. instrument to view small things; 9. condition of small fingers; 10. complete atrophy.

Analyze the words:

11. pancytopenia; 12. polyarthritis; 13. incapacity; 14. postencephalitic; 15. pseudoanemia; 16. endocrine; 17. subglossal; 18. suprarenal; 19. supersonic; 20. synostosis.

UNIT 5
DIGESTIVE SYSTEM

Unit outline

I. Anatomy of the digestive system
II. Pronunciation clues
III. Combining forms and related terminology
IV. Practice
V. Self-check

Unit objectives:

– learn the names, locations, and functions of the major organs of the digestive system;
– understand the terms used to describe the major disease processes which affect these organs;
– learn the combining forms for the organs and structures of the digestive system.

Word Index

These are the words used to describe the digestive system. Read and use your dictionary to look up the meaning of the unknown words:

abdomen
abdominal cavity
abdominal wall
absorb *v*.
absorption
achalasia
achlorhydria
acid output
adenoids
alkaline phosphatase
alkaline transaminase
alimentary canal
amino acid
amylase
anal canal
anastomosis
anorexia
antrum
anus
aphagia
apical foramen
appendicitis
appendix
ascending colon
ascending duodenum
ascites
aspartic acid transaminase
basal acid output
belching
belly
bile
bilirubin
bloating
body
borborygmus
bowel
breakdown of food
Brunner gland
buccal cavity
bulimia
bulk food
calculus
caput medusae
carbohydrate
cardia
cardiac orifice
cardiac sphincter
cecum
cementum
cheek
cheilitis
cholelithiasis
cholestasis
chyme cirrhosis colic
colitis
colon
common bile duct
common hepatic duct
condition constipation
crown
curvature
cystic duct
deglutition
descending colon
descending duodenum
diarrhea
digest
digestion
digestive enzyme
secreting cell
digestive system
diverticulum
dumping syndrome
duodenal bulb
duodenal papilla
duodenum
dysentery
dyspepsia

dysphagia
eliminate *v*.
emulsification
enema
enzymatic splitting
enzyme
eructation
esophageal stricture
esophageal varices
esophagus
etiology
excretion
false diverticula
fat
fecalith
feces
fetor hepaticus
fistula
flatus
flexure
food
food contents
frenulum
fundus
fundus of stomach
gall
gallbladder
gallstone
gastric
gastric juice
gastric polyp
gastric ulcer
gastric vein
gastritis
gastrocele
gastrointestinal tract
gluconeogenesis
glucose
glycogen
glycogenesis
glycogenolysis
greater curvature of stomach
heartburn
hematemesis
hematochezia
hemorrhoids
hepatic duct
hernia herpangina
hiatal hernia
histamine
horizontal duodenum
ileocecal valve
ileal wall
ileum
incisor
ingestion
inguinal canal
insulin
intestinal wall
intussusception
islets of Langerhans
jaundice
jejunum
large intestine
lesser curvature of stomach
lipipase
lipid
liver
liver flap
lobe
lobule
lubricate
malnutrition
mastication
mucous lining
masseter muscle
meal
melena
mesenteric vein
mesentery
metabolism
minor
duodenal papilla
mouth
mucosa
nausea

necrosis
nutrient
obstipation
omentum
oral cavity
orifice
oxidation
pancreas
pancreatic duct
pancreatic enzymes
pancreatic juice
pancreatic islets
papilla
papilla of Vater (major duodenal papilla)
pepsin
perforation
peristalsis
peristaltic contraction
peritoneum
pharynx
polyp
portal system
portal vein
prolapse
protein
ptyalism
pyloric antrum
pyloric part of stomach
pyloric sphincter
pylorus
reabsorption
rectocele rectum
reflux
regurgitation
salivary gland
salivation
secretion
serous membrane
sigmoid colon
small intestine
sphincter
spleen
starch
steatorrhea
stomach
stone
stool
sugar
superior duodenum
throat
tongue
tonsil
tonsillar fossa transverse
vomiting

I. Anatomy of the digestive system

Work with the recommended literature and do ex. 1-5.

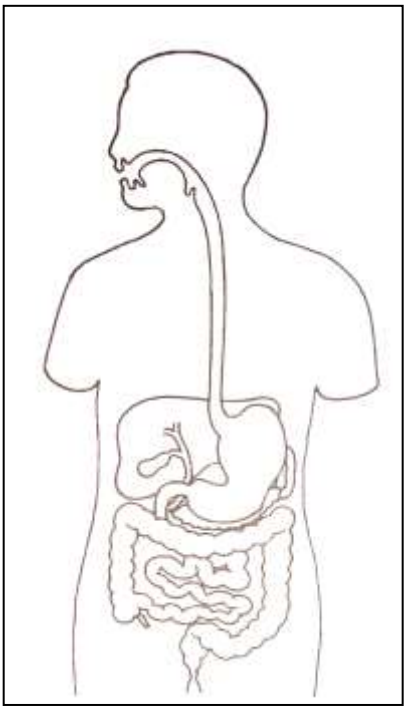
1. Draw the passageway of food in the organism

M __ → P__ → E__ → S__ → D__ → J__→ I__ → C__ → A __C_ → T__ C__ → D__ C__ → S__ C__ → R __ → A__

2. Answer the questions:

1. What are the primary functions of the digestive tract?
2. What parts does the small intestine consist of?
3. Why is the small intestine called small?
4. How many parts is the large intestine divided into?
5. What are the accessory organs of the digestive tract and what functions do they perform?

3. Write the structures of the digestive system:



4. Match the terms with the definitions:

Abdomen	A protein that acts as a catalyst to induce chemical changes in other substances, itself remaining apparently unchanged by the process (e.g., pepsin, glucosidase)
Bile	The yellowish-brown or green fluid secreted by the liver and discharged into the duodenum where it aids in the emulsification of fats, increases peristalsis
Bilirubin	The part of the trunk that lies between the thorax and the pelvis
Enzyme	The largest gland of the body lies beneath the diaphragm in the right. It secretes bile, which is also of great importance in both carbohydrate and protein metabolism
Gallbladder	The process of chewing food in preparation for swallowing and digestion; the act of grinding with the teeth
Liver	The bony and muscular partition between the oral and nasal cavities
Mastication	A pear-shaped receptacle on the inferior surface of the liver, it serves as a storage reservoir for bile

Palate	A clear, tasteless, odorless fluid, its function is to keep the mucous membrane of the mouth moist, to lubricate the food during mastication, etc
Pancreas pl. pancreata	The gland secretes from its exocrine part pancreatic juice that is discharged into the intestine and from its endocrine part the internal secretions, insulin and glucagon.
Peritoneum pl. peritonea	A thickening of the circular layer of the gastric musculature encircling the gastroduodenal Junction
Pyloric sphincter	A red bile pigment, formed from hemoglobin during normal and abnormal destruction of erythrocytes by the reticuloendothelial system
Saliva	A mobile mass of muscular tissue covered with mucous membrane, occupying the cavity of the mouth and forming part of its floor. It bears the organ of taste
Starch	The serous sac, consisting of mesothelium and a thin layer of connective tissue, lines the abdominal cavity and covers most of the viscera contained there
Tongue	A high molecular-weight polysaccharide

5. Make a short report about the digestive system.

II. Pronunciation

Here are some tips for pronunciation:

- Only the **s** sound in **ps** is pronounced, as in *pseudocarcinoma*
- Only the **n** sound in **pn** is pronounced, as in *pneumococcal*
- **G** and **c** assume the soft sound of **j** and **s**, respectively, when used before **e**, **i** and **y**; examples are *gene, gingivitis, cytology*
- **G** and **c** have hard sounds in front of other letters, such as *gastritis, cardiomegaly*
- **Ph** sounds like **f,** as in *phlegm*
- **X** sounds like **z,** as in *xeroderma*
- **Ae** and **oe** are pronounced **ee,** as in *fasciae*
- **I** at the end of a word usually denotes a plural and is pronounced **eye**, as in *bronchi*
- **Es** at the end of a word may be pronounced as a separate syllable, as in *metastases*
- **P** when followed by a consonant (**t, n**, etc) at the beginning of a word is **silent** (*pneumonia, ptosis*); however, when the **p** is in the middle of the word it is pronounced (*gastroptosis*).

Because phonetic spelling isn't used in medicine, it's important to consult a dictionary when in doubt about pronunciation. Also, some terms sound the same but are spelled differently and refer to different things. For example, *ileum* and *ilium* are pronounced alike, but the first term is part of the intestinal tract and the second one is a pelvic bone.

6. Read the terms given below:

pharyngeal; xanthopsia; pseudohernia; pneumonia; myelogenous; thrombi; splenoptosis; cecostomy; anastomosis; anastomoses.

III. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

amylo-, ano-, appendo-, appendico-, bucco-, bilirubino-, bili-, cheilo-, ceco-, celio-, chole-, cholecysto-, colo-, colono-, denti-, duodeno-, entero-, esophago-, gingivo-, glyco-, gluco-,glycogeno-, hernio-, ileo-, jejuno-, labio-, inguo-, lipo-, odonto-, oro-, palato-, pancreato-, peritoneo-, pharyngo-, procto-, pyloro-, sialo-, sigmoido-, stomato-, -ase, -iasis, -lith, -prandial, -clysis, -ectasis, ectasia, -emesis, -orrhagia, -pepsia, -phagia, -ptysis, -rrhaphy, -rrhea, -rrhexis, -spasm, -stalsis, -stasis, -stenosis, -tresia

IV. Practice

1. Insert the correct answer:

a) List two combining forms for the **lips**.
b) Give two combining forms for the **tongue**.
c) Give two combining forms for the **appendix**.
d) List two combining forms for the **colon**.

2. Underline any misspelled terms and insert the correctly spelled word in the space provided:

Labiogingival, tonsiloscopy, esophageal, jejunoileitis, sialic, pharyngitis, periodontist, apendolithiasis.

3. Find the mistake and correct the wrong definitions:

1) Enteroscope – visual examination of the intestine; 2) sialoadenolithiasis – condition of stones in saliva; 3) ileectomy – surgical removal of ilium; 4) subperitoneal – pertaining to around peritoneum; 5) cholemia – blood in bile; 6) pyloroduodenitis – inflammation of the duodenum and palate; 7) choledochography – record of common bile duct; 8) amyloid – resembling without muscle; 9) steatonecrotic – inflammation and death of fat tissue; 10) celiomyomectomy – removal of muscles in abdomen.

4. Give the meaning and its synonym for the following combining forms:

1. –lysis _ or _ 2. –clysis _ or _ 3. –stomy __ or __ 4. –ectasis _ or _ 5. –stasis _ or _ 6. –phagia _or__

5. Give the combining form for the following:

Rupture; suture; hemorrhage; stretching; prolapse; narrowing; hardening; flow; digestion; eating; spitting; vomiting; no opening; violent contraction of muscles; fixation; surgical puncture; surgical repair.

6. Divide the following medical words into word-building elements:

Choleperitonitis; perihernial; esophagogastroduodenoscopy; pharyngo-oral; subabdominoperitoneal; gastromyotomy; pancreatogenous; choledochocholedochostomy; perihepatitis; glycolytic; hyperadiposis.

7. Give the meaning of the following terms:

Enterotomy; cheilitis; nephropexy; abdominocentesis; pyloroplasty; buccal; choledochoduodenostomy; diarrhea; dyspepsia; esophagostenosis; enteroclysis; herniorrhaphy; jejunoileostomy; emetic; eupeptic; gastroscopy; celiomyalgia; colorectotomy; pharyngeal; esophagotomy; pancreatitis; sigmoidopexy; duodenogram; appendolithiasis; cholecystectomy.

8. *Build medical words:*

Prolapse of the stomach; process of x-ray picturing the gallbladder; irrigation of the rectum; vomiting blood; stretching of the lymph vessels; hemorrhage from a tooth; suturing of a hernia; anastomosis between the cecum and colon; involuntary contraction of the pyloric sphincter; spitting up blood; rupture of the colon; removal of the pancreas; visual examination of the anus and rectum; inability to swallow; stone in the salivary gland; pertaining to under the tongue; inflammation of a salivary gland; blood conditions of excessive bilirubin; pertaining to the gland; removal of a tonsil; enlargement of the liver and spleen; hernia of the rectum; incision into the common bile duct; disease of the small intestine; removal of the colon; pertaining to the cheek; after meals.

9. Find and correct mistakes in medical words:

1) Liver cell – hepatocyto; 2) bile in blood – cholemesis; 3) hernia of the rectum – rectohernia; 4) pertaining to the stomach – stomatic; 5) a new opening between the intestine and gallbladder – enterocholedochostomy; 6) washing of the intestine – enterolysis; 7) rupture of the cecum - cecorrhaphy; 8) dilation of the appendix – appendicoectasis; 9) production of bile – biligenic; 10) surgical repair of the abdomen and peritoneum – abdominoperitoneopexy; 11) pertaining to across the abdomen – transabdomen.

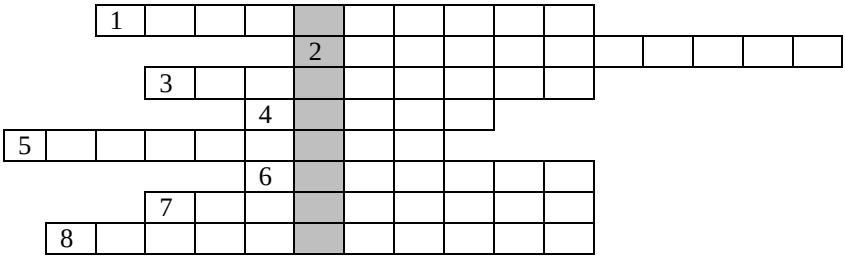
10. Match the term with its definition (the words in brackets are synonyms of the conditions):

Hyperperistalsis, Pseudohernia, Hemicolectomy, Lipase, Hypodontia (Oligodontia), Laparotomy (Celiotomy), Hyperorexia (Bulimia), Odontoneuralgia

- inborn or acquired absence of teeth;
- excessively quick passage of food through the stomach and intestine;
- chronic pathology with relapsing attacks of overeating with uncontrollably quick swallowing of food in large quantities which is then followed by vomiting accompanied by a feeling of guilt and depression;
- transabdominal incision into the peritoneal cavity;

– surgical operation, excision of right or left half of the colon;
– in general, any fat-splitting or lipolytic enzyme;
– pain in a facial nerve caused by an impacted tooth;
– inflammation of the scrotal tissues or of an inguinal gland, simulating a strangulated hernia

11. Do the crossword. As a result, you will see the key term in the highlighted area.



1. Inflammation of the oral mucosa (mouth).
2. Involuntary contraction and relaxation of the muscles of the digestive tract (surrounding contraction).
3. Difficult swallowing.
4. The first part of the large intestine.
5. Inflammation of the tongue.
6. The part of the large intestine, resembling an S.
7. A combining form for "stomach".
8. The part of the GI system, both endocrine and exocrine organ. As exocrine it secretes juices and enzyme, as endocrine it secretes hormone insulin.

12. Unscramble the following to get some words mentioned in the unit. Use the definitions below (if necessary):

DIISORDNOUYEPOLT, CSCCYOTOMTEYEHL, CRTSHA, MNACTATSOII, STENOOREPEC, LIBE, ACUBLC, SEPYASIPD, CLIENESROYTS, DAURNGMODOE

1. A yellow or greenish alkaline fluid that is secreted by the liver, stored and concentrated in the gallbladder, and passed into the intestinal duodenum where it aids especially in the breakdown and absorption of fats

2. Chewing, in which food is crushed and mixed with saliva to form a bolus for swallowing

3. A soft, white, tasteless powder that is insoluble in cold water, alcohol, or other solvents

4. The procedure of using an endoscope for the direct visualization of the small bowel

5. Inflammation of the pyloric and duodenal mucosa

6. Of, relating to, near, involving, or supplying a cheek or a mouth

7. An examination of the small bowel
8. Any symptom, such as discomfort or pain, coming from the upper digestive tract
9. A radiograph of the duodenum after it has been filled with a contrast medium
10. Surgery to remove your gallbladder

13. Find the meaning of the abbreviations (See Appendix):
ALT, BM, DRE, EGD, ERCP, GB, GER, GERD, GI, IBS, PUD

V. Check yourself

Analyze the words:
1) Anorexia; 2) amylase; 3) hyperglycemia; 4) sialadenolith; 5) oral; 6) cholestasis; 7) periesophageal; 8) dysentery; 9) peristalsis; 10) periodontist.

Build medical words:
11) Pertaining to the throat; 12) production of bile; 13) no nourishment of fat; 14) recording of the gallbladder; 15) pain in teeth; 16) prolapse of the stomach and colon; 17) specialist in the stomach and intestine; 18) removal of the appendix; 19) inflammation of the liver; 20) involuntary contraction of the tongue.

UNIT 6
TEETH AND FACIAL REGION

Unit outline
I. Anatomy of the oral cavity and facial region
II. Terms pertaining to the teeth and facial region
III. Combining forms, prefixes and suffixes
IV. Practice
V. Self-check
Unit objectives:
- to learn the names, locations, and functions of the major structures of the face and oral cavity;
- to understand the terms used to describe the teeth, facial region, and major diseases of these structures;
- to learn the combining forms for the structures of the face and oral cavity.

Word Index

These are the words used to describe the teeth and oral cavity. Read and use your dictionary to look up the meaning of the unknown words:

abrasion	alignment	apex
abrasive	amalgam	apical
abutment	anchor	apical foramen
adjacent	angular	arch
adult	anomaly	arched
align	anterior	artificial crown

artificial teeth
bicuspid
bilateral
bite
braces
bridge
bridgework
brush
brushing
bruxism
buccal
buccal cavity
bur
calcification
calcify
calcium
calculus
canine
caries
crown
cement, cementum
ceramic
cheek
cheilitis
chew *v.*
chin
chisel
cleft
complete denture
composite
congenital
contour
crown
cusp
cuspid
decay
deciduous
defect
defective
deglutition
dental floss
dentin
dentist
dentistry
dentition
denture
dislocation
distal
enamel
erupt *v.*
erruption
esthetic
exfoliate
external
extract *v.*
extracted
extraction
face
facial
filling
fissured
fixed bridge
floor of the mouth
floor of the oral cavity
fluoride
fluoride toothpaste
food debris
frenulum
gingiva
grind food
grinding
halitosis
hard palate
implant
incisal
incision
incisor
impacted tooth
implant
jaw
jawbone
lingual
lip
lower jaw
low-fluoride
toothpastes
mandible
mandibular
masticate
mastication
masticatory
maxilla
maxillary
maxillary dental arch
midline
mineralize
missing teeth
mixed dentition
molar
mouth
mucosa
mucosal
mucous
mucus
occlusal
oral
oral cavity
periodontal disease
periodontium
permanent
plaque
poor oral hygiene
porcelain
porous
posterior
premolar
premolar pulp
prophylaxis
proximal
pulp
pulp cavity
pulpal
pus

removable dentures
remove *v.*
repair *v.*
replace *v.*
replacement
restoration
restorative
restore *v.*
restored
rinse *v.*
rinsing
root
root canal
ruga
saliva
salivary
salivary gland
scaler
scaling
seal
sealant
shedding
soft palate
stomatitis
stone
swallow *v.*
swallowing
tartar
temporary
temporary filling
temporomandibular joint
throat
tongue
tonsil
tonsillar fossa
tooth
tooth decay
tooth extraction
tooth x-ray
toothache
upper jaw
uvula
veneer
wisdom tooth

I. Anatomy of the oral cavity and facial region

Work with the recommended literature.
Do the multiple choice test:

1. What structure does the gastrointestinal tract begin with?
   a) cheeks
   b) mouth
   c) teeth
2. What are other names for the mouth?
   a) buccal cavity, oral cavity
   b) lip cavity, oral cavity
   c) lip cavity, buccal cavity
3. What structure forms the upper portion of the oral cavity?
   a) tongue
   b) palate
   c) uvula
4. What is mandible?
   a) upper jaw bone
   b) muscle
   c) lower jaw bone
5. What are the portions of the palate?
   a) hard palate, soft palate, uvula
   b) hard palate, soft palate, tongue
   c) hard palate, tongue, soft palate
6. What structure moves food around during mastication?
   a) teeth
   b) lips
   c) tongue
7. How many permanent teeth are there?
   a) 34
   b) 32
   c) 20
8. What is the name of the tissues and membranes surrounding the teeth?
   a) gums
   b) lips
   c) tongue
9. Any one of the four front teeth of either jaw is called
   a) molar
   b) incisor
   c) canine
10. The teeth that grind food are
    a) molars
    b) incisors
    c) canines

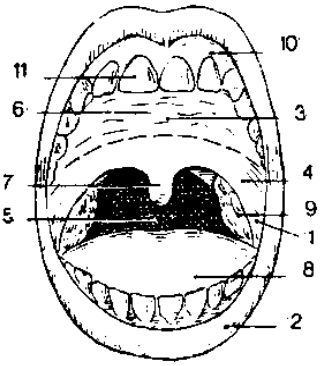
11. Cuspids are also called
a) molars
b) incisors
c) canines
12. The upper portion of the tooth is called
a) head
b) crown
c) crest
13. The portion of the tooth embedded into a tooth socket is
a) foot
b) tail
c) root
14. What is the crown covered with?
a) dentin
b) cementum
c) enamel
15. … is the main substance of a tooth.
a) dentin
b) cementum
c) enamel
16. The root surface is covered by
a) dentin
b) cementum
c) enamel
17. The soft vascular layer in the center of the tooth is called
a) enamel
b) dentin
c) pulp
18. The tooth is surrounded and held in place by
a) periodontal membrane
b) mucous membrane
c) cell membrane
19. What do salivary glands produce?
a) sweat
b) saliva
c) mucus

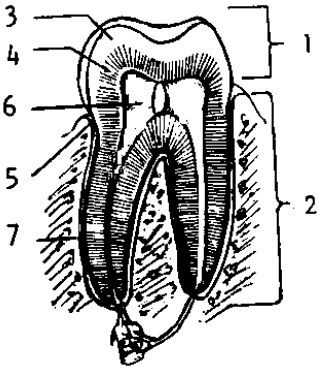
II. Terms pertaining to the teeth and facial region

1. Study the terms pertaining to teeth and facial region. Write the structures on the pictures:

Alveolus – a tooth socket in the mandible or maxilla
Cementum – the bonelike connective tissue that covers the roots of the teeth and helps to support them in the alveolar bone
Cheeks – side of the face below the eye
Chin – the raised triangular portion of the mandible below the lower lip. It is formed by the mental protuberance
Crown – the upper portion of a human tooth that is covered by enamel
Dentin – **the** chief substance of teeth
Enamel – the hard, white substance that covers and protects the tooth
Gums – the tissues and membranes surrounding the teeth
Hard palate – anterior part of the palate
Jaw – a common term used to describe the maxillae the mandible and the soft tissue that covers these structures
Lips – external soft structure around the mouth
Periodontal membrane – tissue and membranes surrounding the teeth
Pharynx – membraneous tube extending from the oral cavity to the level of the first part of the esophagus

Pulp – soft, spongy tissue in the pulp chamber of the tooth
Root – portion of a tooth implanted in gums
Rugae (sing. Ruga) – folds located on the hard palate
Soft palate – posterior part of the palate
Tongue – **the** organ of speech and taste
Tonsils – **the** mass of special lymph tissue
Uvula – small tissue projecting in the middle of the palate in the throat





Cheeks _____
Gums _____
Hard palate _____
Lips _____
Pharynx _____
Rugae _____
Soft palate _____
Tongue _____
Tonsils _____
Uvula _____
Cementum _____
Crown _____
Dentin _____
Enamel _____
Periodontal membrane _____
Pulp _____
Root _____

2. Make a brief report about the structure of the oral cavity and teeth.

III. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

adamanto-, alveolo-, bucco-, cheilo-, denti-, dentino-, enamelo-, gingivo-, glosso-, labio-, gnatho-, linguo-, mandibulo-, maxillo-, odonto-, oro-, palato-, pharyngo-, pulpo-, sialo-, stomato-, tonsillo-, -schisis, radi-, mento-, -lith, -cele, cario-, cemento-

IV. Practice

1. Read and fill in the gaps with the names of dentistry branches

ENDODONTICS, ORTHODONTICS, PERIODONTICS, PPROSTHODONTICS, ORAL AND MAXILLOFACIAL SURGERY:

_____ is one of the nine specialties of dentistry dealing with the tooth pulp and the tissues surrounding the root of a tooth.
_____ is the specialty of dentistry that includes the diagnosis, surgical, and related treatment of diseases, injuries, and defects involving both the functional and esthetic aspects of the hard and soft tissues of the head, mouth, teeth, gums, jaws, and neck.
_____is a specialty of dentistry that is concerned with the study and treatment of malocclusions (improper bites), which may be a result of tooth irregularity, disproportionate jaw relationships, or both.
_____ is the branch of dentistry that studies supporting structures of teeth, and diseases and conditions that affect them.
_____ is one of the dental specialties pertaining to the diagnosis, treatment planning, rehabilitation, and maintenance of the oral function, comfort, appearance, and health of patients with clinical conditions associated with missing or deficient teeth and/or oral and maxillofacial tissues using biocompatible substitutes

2. Divide the words into word-building elements:

Pulpal, palatoplasty, sialolith, stomatodynia, glossology, palatoschisis, dental, alveolitis, enamelogenesis, microglossia, peroral.

3. What anatomical structures does each term describe?

Cheiloplasty, dentalgia, alveololabial, gingival, odontogenic, microcheilia, odontopathy, pulpotomy, radiectomy, palatorrhaphy, sialadenotomy, sialangiography, stomatopathy, macroglossia, labioglossolaryngeal, gnathalgia, cementopathy, adamantine, periodontitis, submandibular, odontoatrophy.

4. Analyze the words:
Odontorrhagia, pulpotomy, palatitis, pulpalgia, lingual, sialoma, glossectomy, cheiloalveoloschisis, labioglossopharyngeal, cheilosis, dentinoid, alveolopalatal, gingivitis, carious, megaloglossia, macrocheilia Intermandibular

5. Match the terms and their definitions from the encyclopedia:
odontodysplasia, sialorrhea, glossitis, gnathology, cheilorrhaphy, dentinogenesis, gingivoplasty, cariogenic, maxillary, odontalgia, odontoma, amelogenesis, cementoblast, periodontist

- inflammation of the tongue
- a field of dental or medical study that deals with the entire masticatory apparatus, including its anatomy, histology, morphology, physiology, pathology, and therapeutics
- the formation of the dentin of the teeth
- an abnormality in the development of the teeth, characterized by deficient formation of enamel and dentin
- the surgical contouring of the gingival tissues to maintain healthy gingival tissue
- an excessive flow of saliva that may be associated with a variety of conditions, such as acute inflammation of the mouth, mental retardation, mercurialism, pregnancy, teething, alcoholism, or malnutrition
- pertaining to the upper jawbone
- a surgical procedure that sutures the lip, such as in the repair of a congenitally cleft lip or a lacerated lip
- a toothache
- the formation of the enamel of the teeth
- a dentist who specializes in periodontics
- a large squamous or cuboidal cell that is responsible for the formation of cementum on the root dentin of a developing tooth
- an anomaly of the teeth that resembles a hard tumor, such as dens in dente, enamel pearl, and complex or composite odontoma. It consists of cementum, dentin, enamel, and pulp tissue that may be arranged in the form of teeth
- tending to produce caries

6. Build the terms:

Surgical removal of the lower jaw bone, removal of the tooth, toothache, condition of small teeth, pertaining to under the tooth, pertaining to under the tongue, pertaining to stopping caries, disease of cementum, surgical removal of the lip specialist in dentistry resembling a tooth, inflammation of the gums and oral cavity mucosa, immature cell of the tooth, inflammation of the salivary gland cyst of the salivary gland, lip cleft, pertaining to lips and gums, pertaining to between the teeth

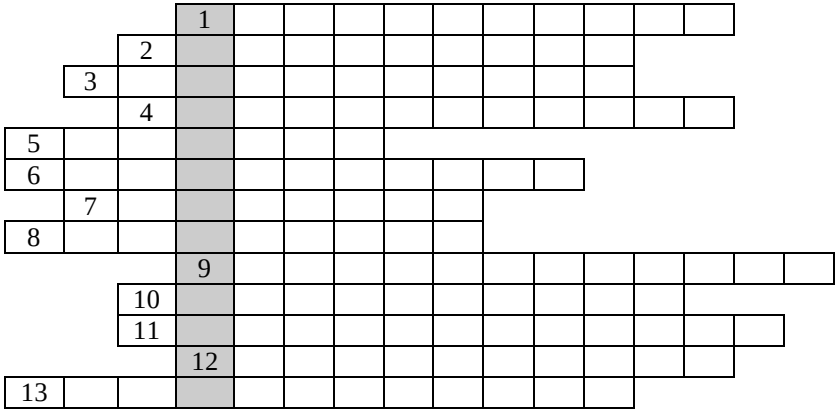
7. Each word has a mistake. Find and correct it:

Ugnathic, cheilofagia, alveololingwal, maxilitis, odontolisis, odontoceel, palatoshisis, glosalgia, glossodinia, stomatorraphia, ortodontist.

8. Arrange the letters to build a term:

Oodtiitsn, uccbla, ssglooayhp, ppuall, ssttooaaplmm

9. Do the crossword:



Down:

1 – pertaining to under the lower jaw

Across:

1 – x-ray study of the salivary gland
2 – removal of the tooth pulp
3 – surgical repair of the lip
4 – development of enamel
5 – pertaining to palate
6 – toothache
7 – absence of teeth
8 – inflammation of lips
9 – pertaining to the cheek and gingiva
10 – pertaining to above the chin
11 – cleft tongue
12 – surgical cutting of the alveoli
13 – condition of small jaw

10. Find the common abbreviations for the following terms:

anterior, bilateral, buccal, cementoenamel junction, crown, decay, distal, endodontic, facial, gingivitis, incisal, lingual, mandibular, maxillary, occlusal, oral surgery, periodontal, permanent, root canal, temporomandibular joint, tooth, toothbrush, twice a day

V. Check yourself

Build medical words:

1) surgical cutting of the lip; 2) inflammation of the tooth socket; 3) pertaining to tooth development; 4) breakdown of the tooth socket; 5) absence of some teeth (decreased number of teeth); 6) tooth breakdown; 7) pertaining to under the tongue; 8) pertaining to the chin; 9) tooth cutting; 10) cleft lip.

Analyze the words:
11) megalodontia; 12) gnathopalatoschisis; 13) macroglossia; 14) prosthodontist, 15) gnathalgia; 16) adamantine; 17) interdental; 18) periodontosis; 19) cementocyte, 20) enameloblast.

UNIT 7
URINARY SYSTEM

Unit outline
I. Anatomy of major organs of the urinary system.
II. Urine production.
III. Combining forms and terminology.
IV. Practice
V. Self-check

Unit objectives:
– learn the location and the function of the organs in the urinary system
– understand the terms used to describe the major disease processes that affect these organs
– be able to use and recognize the combining forms, prefixes, and suffixes of the system

Word Index

These are the words used to describe the urinary system. Read and use your dictionary to look up the meaning of the unknown words:

abdominal aorta
acetone
acetone body
acetonuria
acid
acid-base balance
acidity
adrenal gland
afferent glomerular arteriole of the kidney
afferent renal arteriole
albumin
albumin-creatinine ratio (ACR)
albuminuria
aldosterone
ammonia
antidiuretic hormone
anuria
apex of a renal papilla
arcuated artery
arteriole
ascending limb of the loop of Henle
azotemia
azoturia
bacteriuria
bladder
blood casts
blood pressure
bloodstream
bilirubin
biopsy
Bowman′s capsule
Brödel's white line
calculous
calculus
caliectasis
calyceal branching
calyx (pl. calyces)
capillary

carbon
cast
catheter
chlorides
clearance
cloudiness
coil
collecting duct
contracurrent mechanism
convex border
cortex
cortical
cortical arches
cortical substance of kidney
creatinine
creatininuria
creatinuria
cystitis
cystoscopy
cystourethrography
descending limb of the loop of Henle
detrusor muscle of bladder
dialysis
discharge
distal convoluted tubule
diuresis
dysuria
efferent renal arteriole
electrolite
epithelial cast
epithelial cell
enuresis
essential hypertension
excrete v.
excretion
extraction fraction
fat cast
filter *v.*
filtrate
filtration
fluid and electrolyte homeostasis
forced urinary volume
globular tufts of capillaries
glomerular
glomerular capsule
glomerular filtration rate
glomerulonephritis
glomerulopathy
glomerulosclerosis
glomerulus (pl. glomeruli)
glucose
glycosuria
granular cast
hematuria
hemodialysis
hemoglobin
hemoglobinuria
hilum
homeostasis
H_2O-permeable
hyaline cast
hydrogen
hydronephrosis
hyhernehyroma
hyperosmotic interstitium
hypertension
hypoosmolar urine
inferior vena cava
infusion
inorganic
insulin
interlobular artery
interlobular vein
intravenous pyelogram
ion
juxtamedullary nephron
ketone body
ketosis
ketoplasia
kidney tubules
kidney
leukocyturia
lithotripsy
loop of Henle (Henle's loop, nephron loop)
malpighian corpuscles

maximum / minimum urinary concentration
maximum / minimum urinary volume
meatal
meatus
medulla
medullary
medullary substance of the kidney
metabolism
microcalyx
miction
micturition
myoglobinuria
nephrectomy
nephrocystanastomosis
nephrohypertrophy
nephrolithiasis
nephrolithotomy
nephron
nephromegaly
nephropexy
nephroptosis
nephrorrhaphy
nephrosclerosis
nephrosis
nephrotomography
nitrogen
nitrogenous
nitrogenous waste
nocturia
oliguria
organic
osmolarity
osmotic H_2O flow
osmotic pressure
outflow
oxygen
papilla
paranephric
peritoneal dialysis
peritubular capillary network
phenylketonuria (PKU)
phosphate
polycystic kidney
polydipsia
polyuria
preurine
proximal convoluted tubule
prostate gland
proteinuria
pus cast
pyelogram
pyelolithotomy
pyelonephritis
pyeloplasty
pyelostomy
pyuria
reabsorb
reabsorption
reaction
recirculation
renal transplantation
renal artery
renal calculus
renal capsule
renal column
renal columns of Bertin
renal corpuscle
renal cortex
renal dialysis
renal failure
renal glomerulus
renal ischemia
renal medulla
renal papilla
renal parenchyma
renal pelvis
renal plasma flow (RPF)
renal pyramid
renal sinus
renal tubule
renal vein
renin
retention
retrograde
retrograde pyelogram

secondary hypertension
soluble
specific gravity
squamous cell
stricture
sugar
sulfate
suppuration
suprarenal artery
trigone
tubular capillary plexus
tubule
tubuloglomerular balance
ultrasonography
urea
uremia
ureter
ureteral colic
ureteral spasm
ureterectomy
ureterocystostomy
ureterolithotomy
ureterostomy
urethra
urethritis
urethrospasm
uric acid
urinalysis
urinary bladder
urinary epithelium cell
urinary excretion
urinary meatus
urinary retention
urination
urine
urine density
urogenital apparatus
urogenital diaphragm
urogram
urology
urostasis
vesicoureteral reflux
vesicourethral junction
voidance of urine
waste
white blood cell
Wilms′ tumor

I. Anatomy of major organs of the urinary system.

Work with the recommended literature.

1. Answer the questions:

1. What are the main organs of the urinary system?
2. What is the main function of kidneys?
3. Where are the kidneys situated?
4. What are the regions of the kidneys?
5. What is the difference between urea and urine?

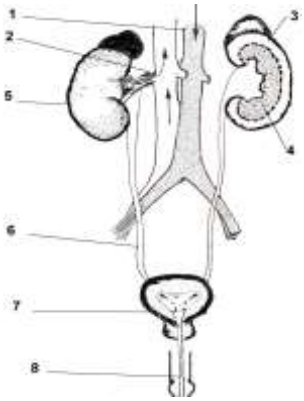
2. Match the terms and their definitions:

Kidney, Glomerulus, Cortex, Ureter, Medulla, Tubule, Urinary bladder, Urethra, Urinary

– the outer part of an organ, as distinguished from the inner, medullary part
– a musculomembranous elastic bag serving as a storage place for the urine
– one of the two organs that excrete the urine
– any soft marrow-like structure, especially in the center of a part
– a small tube

– the thick-walled tube, conducting the urine from the renal pelvis to the bladder
– a canal leading from the bladder, discharging the urine externally
– relating to urine
– a tuft formed of capillary loops at the beginning of each renal tubule in the kidney

3. Write the structures on the picture



____aorta,
____ renal artery,
____ cortex,
____ medulla,
____ kidney,
____ ureter,
____ urinary bladder,
____ urethra,
____ renal vein

II. Urine production.

1. Complete the flow diagram of the process of forming and expelling urine.

Use the words: **Glomerulus; Bowman's capsule; Urethra; Urinary meatus; Bladder; Renal tubule; Bloodstream; Renal pelvis; Ureter.**

B ___ (Renal arteriole) → G___ (Filtration. Water, sugar, salts, urea/other wastes) → B ___ ___ → R____ ___ (Urea/wastes, salts, water acids = urine) → R__ ____→ U _____ → B____ → U ____ → U ____ ____→ urine is expelled from the body.

2. Make a brief report about the urinary system.

III. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

azoto-, bacterio-, calio-, cortico-, cysto-, dipso-, glomerulo-, meato-, medullo-, nocti-, oligo-, pyelo-, pyo-, reno-, uretero-, uro-, vesico-, -uria

IV. Practice

1. Give the plural for the following:

Calyx; Glomerulus; Bacterium; Calculus; Urinalysis; Protein.

2. Give the meaning of the following combining forms:

Nocti-; vesico-; cortico-; calio-; pyelo-; pyo-; azoto-; oligo-; cysto-.

3. Build medical terms:

an abnormal condition of water in the kidney; incision of the urinary bladder; enlargement of the kidney; pus in the urine; dilation of the renal pelvis; condition of hardening (of arteries) in the kidney; fixation of the kidney; pain in the urethra, inflammation of the urinary bladder with pus; condition of scanty urine; inflammation of kidneys and glomeruli; pertaining to nourishment of kidneys; resembling the cortex

4. Give the meaning of the following terms:

Cystopanendoscopy; albuminuria; uremia; hematuria; pyelonephritis; ureteropyosis; polydipsia; anuria; nephritogenic; bacteriogenic; bacteriemia; vesicoureteral; pyocyte; meatotome

5. Give the meaning of the following:

Nephrorrhaphy; glomerulonephritis; nephrosis; renal ectopia; nephrolithiasis; pyeloplasty; nephrectomy; ureterosigmoidostomy; urethritis; ureterography; urethrorrhagia; cystoscopy.

6. Underline any misspelled terms and insert the correctly spelled word:

calectasis; cystitis; glomerular; medullary; urethritis; ureterolithotomy; dypsotherapy; uropoiesic; uretral.

7. Arrange the letters to build a word:

ULSMLREGUO, RTUHREA, BEUTLU, AEUR, TRUREE, BTEOOSADRML, TAMREACBIE, ILNYUSIRSA, ITLIAFNTOR, LIUAIMNURBA

8. Match a term denoting clinical procedures used in the diagnosis and treatment of urinary-system disorders and its definition provided below:

Angiography	the use of an artificial kidney system to filter the blood of an individual to remove metabolic and other waste
Dialysis	x-ray of blood vessels after the injection of a substance that is not penetrated by X-rays
Hemodialysis (HD)	the passage of fluid through a membrane; used in kidney disorders to remove toxic substances and maintain normal functioning of the organ
Intravenous pyelogram (IVP)	the use of IV-injected dye to produce an X-ray of the ureter and renal pelvis; used to follow the filling capacity of the urinary system
Renal biopsy	the use of sound waves to diagnose renal-system diseases
Ultrasonography	obtaining renal tissues for microscopic viewing
Urinalysis	examination of urine to determine the presence of abnormal elements

9. Find terms, denoting clinical procedures. Terms may be read from left to right, backward, up and down. When you locate the term, circle it. A total of seven procedures and their abbreviations from ex. 8 can be found among the letters.

D	Y	H	Y	L	O	U	R	I	N	A	L	Y	S	I	S	D	S	A	C	X	N
I	R	E	N	M	L	Y	H	P	A	R	G	O	N	O	S	A	R	T	L	U	Q
A	M	B	V	C	M	O	L	R	E	N	A	L	U	I	I	B	I	O	P	S	Y
L	O	L	T	O	P	T	C	H	A	E	Y	H	R	A	R	G	O	I	G	N	A
Y	H	E	M	O	D	I	A	L	Y	S	I	S	O	P	N	R	E	S	A	M	W
S	M	H	T	Y	R	E	D	S	R	T	O	P	E	R	T	Y	N	N	E	S	K
I	N	T	R	A	V	E	N	O	U	S	S	P	Y	E	L	O	G	R	A	M	O
S	L	I	V	P	F	E	T	A	R	M	N	X	O	L	B	S	A	T	R	E	H

10. Find the meaning of the following abbreviations Which of them denote diseases (diagnostic procedures, treatment methods:

AGN, ARF, BNO, BUN, cysto, ESRD, ESWL, EU, GU, IVP, IVU, KUB, PCNL, UA, VCUG

V. Check yourself:

Analyze the words:

1) Polycystic; 2) cystomorphous; 3) dialysis; 4) cystourethrogram; 5) pyelonephritic; 6) cystoscopic; 7) pyelography; 8) glomerular; 9) nephrohydrosis; 10) urethrodynia.

Build medical words:

11) Pertaining to the meatus; 12) an X-ray record of any portion of the urinary tract; 13) formation of ketones; 14) pertaining to the formation of pus; 15) absence of urine formation (without urine); 16) bile in urine; 17) inflammation of the urinary bladder; 18) pertaining to the glomeruli; 19) cutting of stones in the kidneys; 20) painful urination.

UNIT 8
REPRODUCTIVE SYSTEM

Unit outline

I. Major organs of the female reproductive system. Anatomy of the male reproductive system.
II. Combining forms, prefixes and suffixes
III. Practice
IV. Self-check

Unit objectives:

- to learn the terms that describe the anatomical structure of the female reproductive system
- to learn the terms that describe the anatomical structure of the male reproductive system
- to study combining forms and terminology of male and female reproductive systems

Word Index

These are the words used to describe the reproductive system. Read and use your dictionary to look up the meaning of the unknown words:

amnion
amniotic sac
ampulla
anatomical difference
androgens
areola
birth
blastocyst
body of the uterus
breast
bulbourethral glands
cervical
cervix
Cesarean section
childbirth
childhood
chromosomally induced conditions
chromosome
coiled channels of the epididymis
corpus luteum
corpus spongiosum
Cowper glands
delivery
duct of the epididymis
ductus deferens
ectopic pregnancy
egg cell
ejaculation
ejaculatory ducts
embryo
endometrium
epididymis
estrogen
external genitalia
external os of uterus
fallopian tube
female
female germ cell
female reproductive system
fertility
fertilization
fertilized
fetus
fibroid
follicle stimulating hormone (FSH)
follicular development
fundus of the uterus
gamete
gender
genetic sex
germ cell
gestation
gonadotropin releasing hormone (GRH)
Graafian follicles
hormone replacement therapy
human chorionic gonadotropin (HCG)
human reproductive system
implant
implantation of the blastocyst
in vitro fertilization
labor
lactation
lining
luteinizing hormone (LH)
male
male germ cell
male reproductive system
male sex hormones
mammary papilla
maternal organs
maturation
menopause
menstrual cycle
menstruation
milk gland
mitosis
myometrium
nipple

oocyte
ovarian follicles
ovarian ligament
ovary
ovulation
ovum (pl. ova)
Pap smear
parturition
penis
period of gestation
placenta
posterior fornix
pregnancy
progesterone
progestogen
prostate
puberty
pubic bone
recto-uterine pouch
reproduce
reproduction
reproductive cycle
reproductive tract
round ligament
scrotal sac
scrotum
secondary sexual characteristics
semen
seminal fluid
seminal vesicle
sex glands
sperm cell
sperm channels
spermatic cord
spermatozoon (pl. spermatozoa)
suspensory ligament
testicle
testicular arteries
testis (pl. testes)
testosterone
urethra
urinary bladder
uterine cavity
uterine tube
uterus
vagina
vas deferens
wall of the uterus
womb
yellow body
zygote

I. Major organs of the female reproductive system. Anatomy of the male reproductive system

Work with the recommended literature and do ex. 1–3.

1. Do you agree with the following? Correct the false statements:

- The female reproductive system is confined to producing ova (egg cells); nourishing, carrying, and protecting the developing embryo.
- The prostate gland lies under the urinary bladder and surrounds the second part of the urethra.
- The ovarian and menstrual cycles begin each month when a follicle develops in the uterus.
- The testes are paired reproductive organs in the scrotum, which hangs outside the human body.
- The uterine tubes (oviducts or fallopian tubes) are paired tubes that receive the developing ovum from the uterus.
- The uterus is a hollow muscular organ in front of the rectum and behind the urinary bladder.

– The uterus has three layers: the outer serous layer, and the endometrial inner mucosal lining.
– Unless sperm fertilizes the secondary oocyte, estrogen and progesterone secretion cease.
– After menstruation, progesterone and LH levels increase.
– Each sperm cell has three parts: a head, a middle piece, and a neck.

2. Match the terms and their definitions:

Breast	an organ that produces sex cells; a testis or an ovary
Embryo	the organ of milk secretion
Fallopian tube	release of an ovum from the ovarian follicle
Gamete	a chestnut-shaped body, surrounding the beginning of the urethra in the male, lying above and between the ejaculatory ducts
Gonad	developing organism from conception until approximately the end of the second month
Graafian follicle	any germ cell, whether ovum or spermatozoon
Ovary	one of the tubes leading on either side from the upper or outer extremity of the ovary to the fundus of the uterus
Ovulation	one of the paired female reproductive glands containing the ova or germ cells
Ovum	the male gamete or sex cell that contains the genetic information to be transmitted by the male
Prostate gland	one of the two male reproductive glands, located in the cavity of the scrotum
Spermatozoon	the genital canal in the female, extending from the uterus to the vulva
Testis	the hollow muscular organ in which the impregnated ovum is developed into the child
Uterus	the female sex cell
Vagina	a follicle in which the oocyte attains its full size

3. Make a short report on the reproductive system.

II. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

amnio -, andro-, chorio-, colpo-, cryo-, crypto, epididymo-, gravido-, hystero-, lacto-, mammo-, masto-, metro-, metrio-, oophoro-, orchido-, orchio-, orcho-, ovario-, ovo-, prostato-, salpingo-, spermato-, spermo-, testo-, utero-, vagino-, vaso-, vesiculo-, vulvo-, zoo-, -salpinx, -tocia

III. Practice

1. Analyze the terms:

orchiepididymitis; orchiopexy; azoospermia; spermatorrhea; zoophilia; chorionic; androphobia; cryptomenorrhea; prostatolithotomy; perineorrhaphy; orchialgia; pyosalpinx; vesiculotomy; prostatomegaly

2. Build medical words:

rupture of the uterus; fixation of an ovary; abnormal condition of the inner lining of the uterus; inflammation of the fallopian tubes; pus in the uterine tubes; removal of the uterus, fallopian tubes, and ovaries; incision of the cervix; slow delivery; inflammation of the breast; false pregnancy; inflammation of the inner lining of the cervix; egg cell; new opening in the fallopian tubes; inflammation of testes; excessive development of the prostatic gland; production of sperm cells; pertaining to inflammation of testis; ovarian pregnancy.

3. Supply an example of a term containing the combining form with the following meanings:

bursting forth of blood; surgical repair; suture; dilation; narrowing; tightening; flow; discharge; rupture; incision; new opening; fixation; hernia; birth; pregnancy; fallopian tube; uterus; cervix

4. Correct spelling mistakes:

choroinic, perinoerrhaphy, hypemenorrhea, amnirrhexis, mamography, caldoplasty, massodynia, colporhysterectomy, episistennosis, garvidic, orthialgia, spermatozyte, orchidil, andriod, criotherapy, cryptorchidetomy, zoophobsia, prostatorrea, spermagenic, ephididymoplasty.

5. Correct mistakes in the definitions of terms:

prostatolithotomy – surgical repair of prostate; salpingo-oophorocele – hernia of fallopian tubes and uterus; colpohysterectomy – removal of cul-de-sac and uterus; prostatovesiculoma – instrument for cutting prostatic gland and vesicles; cryptomenorrhea – flow of blood due to cold; zooid – resembling male; mastodynia – flow of blood from breast; perineorrhaphy – rupture of perineum; mammography – instrument for breast X-ray examination; orchialgia – pain in prosaic gland.

6. *Arrange the letters to build words:*

1. The acute inflammation of the fallopian tube, which fills up and swells with pus – OSAMYLPINX.

2. The process by which sperm cell production occurs –EMOPNSSATSEIGER.

3. A psychosomatic state marked by some of the physical symptoms and changes in the hormonal balance of pregnancy – ECUPSESYIODS.

4. An x-ray imaging method used to examine the breast for the early detection of cancer and other breast diseases – GMYPHARMMAO.

5. Complete excision of the seminal vesicles during radical prostatectomy – PRTOECTOMYVESICULOSTA.

6. Inflammation of the vagina and vulva –VANGIIVULVOTIS.

7. Pain in the testicles – DYNIORCHIOA.

8. Relating to pregnant – RADVIIGC.

9. A common benign growth that develops above or behind the testicle – CSPEELEROMAT.

10. Inflammation of the uterus, with the formation of pus – OPEITMYRTSI.

7. Find 10 terms using the definitions:

A	M	B	E	F	G	H	Q	S	O	P	L	M	L	P	N	G	F	Z
C	E	D	I	J	S	P	E	R	M	A	T	O	L	I	T	H	F	W
R	N	O	L	I	G	O	M	E	N	O	R	R	H	E	A	K	I	H
B	A	R	T	H	O	L	I	N	I	T	I	S	R	T	Y	K	L	M
P	R	O	S	T	A	T	O	V	E	S	I	C	U	L	I	T	I	S
L	C	M	S	Q	E	R	T	U	I	O	P	A	S	A	F	G	J	K
N	H	B	F	B	B	H	G	J	J	J	J	K	J	C	J	J	J	P
Z	E	T	R	T	Y	M	U	O	P	P	D	Y	S	T	C	I	A	O
C	T	T	Q	W	E	T	Y	U	V	A	S	O	T	O	M	Y	Q	I
B	Y	T	E	T	U	I	O	P	O	P	V	B	M	G	I	Y	W	U
N	U	G	P	R	O	S	T	A	T	O	R	R	H	E	A	Y	E	T
M	I	Y	Q	W	E	R	T	Y	U	I	O	P	L	P	I	U	R	E
K	O	B	S	P	E	R	M	A	T	O	G	E	N	I	C	I	T	V
M	L	N	W	E	R	Y	I	O	P	Q	E	T	U	C	O	O	Y	C

1) surgical incision of the vas deferens; 2) pertaining to production of milk; 3) difficult birth; 4) scanty discharge during menses; 5) inflammation of Bartholin's gland; 6) stone in sperm; 7) inflammation of the prostate and seminal vessels; 8) pertaining to production of sperm,; 9) flow from the prostate; 10) beginning of menses.

8. Find the meaning of the following abbreviations (See Appendix):

AB, ab, BPH, CS, CWP, DUB, ED, FECG; FEKG, FHR, FHT, FTND, G, GYN, HSG, IVF-ET, LSO, NB, OB, Pap, para 1, TAH, TURP, TVH

IV. Check yourself

Analyze the words:

1) metrorrhagia; 2) culdorrhexis; 3) cryptomenorrhea; 4) pyometritis 5) hypo-ovarionism; 6) hyperorchidism; 7) vesiculoprostatitis; 8) spermocytoma; 9) ovariohysterectomy; 10) salpingo-oophorectomy.

Build medical words

11) sperm in urine; 12) Inflammation of seminal vesicles; 13) the muscular layer of the uterus; 14) inflammation of the cervix and vagina; 15) narrowing of the vulvar orifice; 16) fear of male 17) tumor of the testis; 18) scanty discharge during menses; 19) suturing of the fallopian tubes; 20) surgical puncture of cul-de-sac

UNIT 9
NERVOUS SYSTEM

Unit outline
I. General anatomical structure of the nervous system.
II. Physiology of the nervous system
III. Combining forms, prefixes and suffixes
IV. Practice
V. Self-check

Unit objectives:
– to get acquainted with the structure of the nervous system;
– to learn the terms determining the structure of the nervous system;
– to study combining forms.

Word Index

These are the words used to describe the nervous system. Read and use your dictionary to look up the meaning of the unknown words:

abducens nerve
Achilles reflex
action potential
activity
afferent
arachnoid membrane
astrocyte
ataxia
auditory nerve
auditory reception
autonomic nervous system
axon (nerve fiber)
axon terminal
axoplasmic flow
Babinski's sign
basal ganglion
blood-brain barrier
brain
brain stem
bundle
carry impulses
cell body
central canal
central nervous system (CNS)
cerebellar
cerebellum
cerebral
cerebral cortex
cerebral hemisphere
cerebral palsy
cerebrospinal fluid (CSF)
cerebrovascular accident
cerebrum
cilia
circuit
communicate
conditioned reflex
conditioned stimulus
conduct *v.*
control *v.*
control center
convoluted (wrinkled) layer
convulsion
coordinate the functions
corpus callosum
cortex
cranial cavity
cranial nerves
cranium
dendrite
dendritic spine
dendritic trunk

diencephalon
dura mater
effector organ
efferent
electrochemical stimuli
electroencephalography
emotion
ependymocyte
epilepsy
external environment
facial nerve
fissure
fold
foramen magnum
frontal lobe
ganglion (pl. ganglia)
gap junction
glia (pl. only)
glial capsule
glossopharyngeal nerve
gray matter
groove
gyrus (pl. gyri)
hemiparesis
hemisphere
higher intellectual functions
hydrocephalus
hypoglossal nerve
hypothalamic
hypothalamus
impulse
infundibulum
input
integrate *v.*
interfascicular oligodendrocyte
internal environment
limbic lobe
lipid bilayer
lobe
lumbar puncture
medulla oblongata
memory
meningeal
meninx (pl. meninges)
mental
message
microglia (pl. only)
midbrain
monitor *v.*
motor activity
multiple sclerosis
muscarinic receptor
myelin
myelin sheath
myelinated nerve fiber
myelinated neuron
nerve
nerve cell
nerve fiber
nerve impulse
nervous system
neuroglia
neuroglial cell
neuron
neuronal membrane
neurotransmitter
nicotinic receptor
node of Ranvier
nonmyelinated neuron
occipital lobe
oculomotor nerve
olfactory nerve
oligodendrocyte
optic nerve
parasympathetic nervous system
parietal lobe
patellar reflex
perineuronal oligodendrocyte
peripheral nervous system
phospholipid
pia mater
pineal gland
pituitary gland
plasma membrane
plexus
pneumogastric vagus nerve

pons
position
postcentral gyrus
reaction
receptor
reflex
reflex action
regulate *v.*
respond *v.*
response
satellite
scalp
Schwann cell
seizure
sensory impulse
sensory nerve
sensory receptor
sensory stimulus
shingles
signal
soma (cell body)
somatic sense
speech
spinal canal
spinal cord
spinal nerve
stimulate *v.*
stimulus
stimulus response
subarachnoid space
sulcus (pl. sulci)
superior parietal lobule
sympathetic nervous system
synapse
synaptic connection
synaptic input
temporal lobe
tentorium cerebelli
thalamic
thalamus (pl. thalami)
touch
tract
transmit
trigeminal nerve
trochlear nerve
unmyelinated
ventricles of the brain
visual reception
white matter

I. General anatomical structure of the nervous system

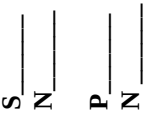
Work with the recommended literature.

1. Complete the scheme describing the structure of the nervous system

NERVOUS SYSTEM

C_____ N_____ S_____ **P_____ N_____ S_____**

B_____ **S_____ C_____** **12 PAIRS OF C_____ N_____** **31 PAIRS OF S_____ N_____** **A_____ N_____**



2. Match the terms and their definitions

Arachnoid membrane	the largest portion of the brain, including mainly the cerebral hemispheres (cerebral cortex and basal ganglia)
Brain	relating to the skull or head
Cerebrum	one of the prominent rounded elevations that form the cerebral hemispheres
Cranial	the part of the central nervous system contained within the skull
Dura mater	one of the membranous coverings of the brain and spinal cord
Gyrus (pl. Gyri)	a delicate vasculated fibrous membrane firmly adherent to the glial capsule of the brain and spinal cord
Meninx (meninges pl.)	the large, ovoid mass of gray matter that forms the larger dorsal subdivision of the diencephalon;
Nervous	a tough, fibrous membrane forming the outer covering of the central nervous system
Pia mater	a delicate fibrous membrane forming the middle of the three coverings of the central nervous system
Spinal cord	one of the grooves or furrows on the surface of the brain, bounding the several convolutions or gyri
Sulcus (pl. sulci)	the elongated portion of the central nervous system, which is contained in the spinal or vertebral canal
Thalamus	relating to a nerve or the nerves

II. Physiology of the nervous system

1. Match the structure of the nervous system and its function:

Cranial nerves	The primary center for regulating and coordinating body activities
Spinal nerves	Control body temperature, sleep, appetite, and emotions such as fear and pleasure
Autonomic nervous system	Carry impulses between the brain and the head and neck
Sympathetic nerves	Surround the brain and spinal cord
Parasympathetic nerves	Protect the brain and spinal cord from shock
Brain	Contain cerebrospinal fluid
Ventricles of the brain	Carry messages between the spinal cord and the chest, abdomen, and extremities
Cerebrospinal fluid	Monitor the received sensory stimuli
Thalamus	1) Carry all the nerves that affect the limbs and lower part of the body, 2) Is the pathway for impulses going to and from the brain
Hypothalamus	Slow down heart rate, contract the pupils of the eye, lower blood pressure, stimulate peristalsis to clear the rectum, and increase the number of secretions
Spinal cord	Stimulate the body in times of stress and crisis
Meninges	Carry impulses from the central nervous system to the glands, heart, blood vessels, and the involuntary muscles

2. Make a brief report on the nervous system.

III. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

algesio-, atelo-,brachio-, cerebello-, cerebro-, duro-, encephalo-,esthesio-kinesio-, meningio-, meningo-, neuro-, phaso-, plexo-, polio-, ponto-, taxo-, thalamo-, ventriculo-, -asthenia, -paresis, -plegia

III. Practice

1. Divide the words into word-building elements:

kinesiotherapy; brachiocephalic; esthesiogenesis; myelodysplasia; anencephaly; hyperdural; hypoesthesia; kinesiodynia; ventriculogram, hypersthenia; paraplegia; sympathectomy; myelogram; analgesia; polioencephalitis; hyposthenia; leukoencephalopathy; myoneural; aphasia .

2. *Give the meaning of the following terms.*

Polyneuralgia; algesthesia; neuroencephalomyelopathy; coccygectomy; meningoencephalocele; esthesiogenesis; myelodysplasia; thalamocortical; epidural

3. Make up medical words using the following definitions and parts of the words:

record of the brain ventricle – ventriculo___, difficulty in coordination – dys____, iflammation of the grey matter of the brain stem and spinal cord –– polio____, inability to speak – a_____, normal movement activity – ___kinesia, slight paralysis of stomach – gastro____, paralysis of nerves – neuro___, pain in coccyx – coccygo____, pertaining to pain production – ____genic

4. Build medical words:

no coordination; inflammation of meninges; hardening of the spinal cord; suture of a nerve; excessive movement; no strength in muscles; difficult speech; slight paralysis of muscles; incision into thalamus; tumor of the membranes surrounding the brain and spinal cord; hernia of the spinal cord; pertaining to the cerebellum and pons.

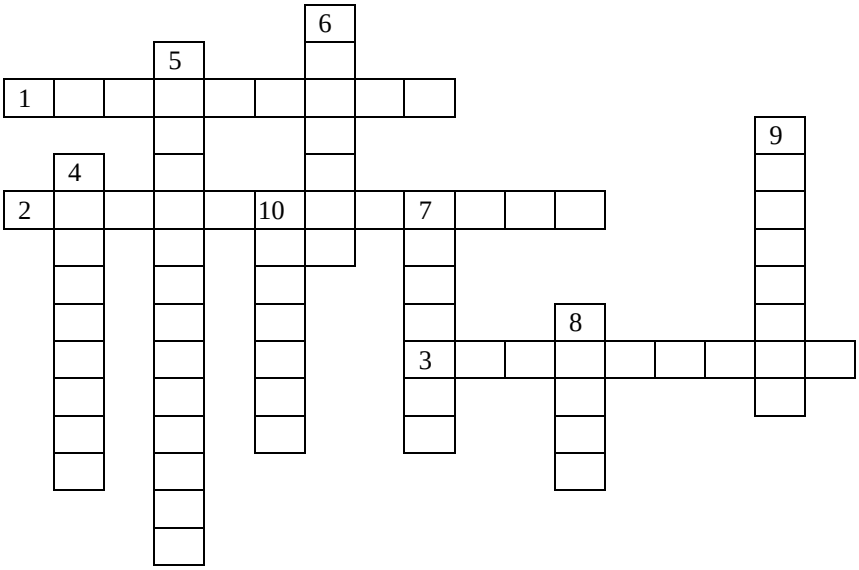
5. Find and correct spelling mistakes:

neuroencephelomyelopathy, cocsygectomy, meningencephalocele, brachoicephalic, estesiogenesis, myolodysplasia, neurodernatitis, hypedural, neuropathogenetis, hipoesthesia, encephalemyocarditis, plexenctomy, cortiscomeningeal, algiogesic,

6. *Use the combining forms of the following meanings to make up as many medical words as you can:*

pain; brain; inflammation; spinal cord, pus; excessive; insufficient; network; pertaining to; surgical removal; pain; movement; treatment; sensation, eyelid.

7. Do the crossword:



Across

1. An early neural cell developing from the early ependymal cell of the neural tube.
2. The part of the brain that lies below the thalamus, forming the major portion of the ventral region of the diencephalon, and that regulates bodily temperature, certain metabolic processes, and other autonomic activities.
3. An induration or hardening, especially from inflammation and in diseases of the interstitial substance; applied chiefly to such hardening of the nervous system or to hardening of the blood vessels.

Down

4. An x-ray of the spinal cord after injection of air or a radiopaque substance into the subarachnoid space.
5. Pertaining to the pons and the medulla oblongata.
6. Pertaining to the skull.
7. Defect or loss of the power of expression by speech, writing, or signs, or of comprehending spoken or written language, due to injury or disease of the brain centers.
8. A cordlike structure comprising a collection of nerve fibers that convey impulses between a part of the central nervous system and some other body region.
9. Decreased pain sensation.
10. A condition of bodily strength, vigor, or vitality.

10. Unscramble the following to get some words mentioned in the unit. Use the definitions below:

TNMAERRUISTEOID, IALFTNOINMAM, AAMOILYPLGY, VETNLEIRC, ASAPILYYODELMS, THIHYOSESEPA, MUNAOILERTCGRV, YDONISEAIKNI, TYHMMEACSOPTY, ETINJICNO,

1. A type of blood cancer that affects the bone marrow.
2. A skin condition that starts with an itchy patch of skin.
3. A shot, or a dose of medicine given by way of a syringe and a needle.
4. Numbness, a common side effect of various medical conditions that manifests as a reduced sense of touch or sensation, or a partial loss of sensitivity to sensory stimuli.
5. An important defense mechanism.
6. An X-ray photograph made by ventriculography.
7. A condition that causes pain, stiffness, and inflammation in the muscles around the shoulders, neck, and hips.
8. Either of two small, hollow spaces, one on each side of the heart, that force blood into the tubes leading from the heart to the other parts.
9. Pain caused by movement.
10. Surgical resection or chemical removal of peripheral sympathetic paravertebral ganglia.

11. Write the abbreviations for the following terms. Compare them with the commonly used (see Appendix):

Alzheimer disease, amyotrophic lateral sclerosis, autonomic nervous system, brain electrical activity mapping, central nervous system, cerebral palsy, cerebrospinal fluid, cerebrovascular accident, electroencephalogram, intracranial pressure, loss of consciousness, lumbar puncture, magnetoencephalography, mental status, nerve conduction velocity, sympathetic nervous system, transient ischemic attack

V. Check yourself

1. Analyze the words:
1) pontomedullary; 2) kinesthesia; 3) ventriculoscopy; 4) angioparesis; 5) brachiocephalic; 6) atelomyelia; 7) cerebroma; 8) neurotomy; 9) epidural.

2. *Build medical words:*
10) inflammation of the skin and nerves; 11) production of nerve diseases; 12) reduced sensitivity; 13) pain during movements; 14) inflammation of the brain and heart muscle 15) pertaining to the meninges and cortex 16) pertaining to the production of pain 17) pertaining to the cortex and thalamus; 18) tumor of ganglion and nerves.

UNIT 10
CARDIOVASCULAR SYSTEM

Unit outline
I. General structure of the cardiovascular system
II. Anatomy of the heart.
III. Combining forms and terminology.
IV. Practice.
V. Self-check.

Unit objectives:
– to learn the structure of the cardiovascular system
– to get acquainted with the function of its constituent parts.
– to study the combining forms and terminology
– to learn to analyze and make up medical terms relating to the structure of the cardiovascular system

Word Index

These are the words used to describe the cardiovascular system. Read and use your dictionary to look up the meaning of the unknown words:

aneurysm
angina
angiography
angiotensin
aorta
apex
arrhythmia
arterial
arterial tree
arteriole
artery
atherosclerosis
atrioventricular groove
atrium (pl. atria)
bicuspid
bicuspid aortic valve
blood pressure
blood flow
bradycardia
branch
branching
breastbone
capillary
carbon dioxide
cardiac muscle
cardiocyte
cardiology
cardiomegaly
cardiomyopathy
cardiovascular
carry *v.*
chamber
chest
circulate *v.*
circulation
circulatory system
cone-shaped
constituent
contraction
coronary sinus
deoxygenated
deplete *v.*
descending aorta
destruction
diastole
Doppler ultrasound

drain blood
elastic fibrous tissue
electrocardiography
endocardium
epicardium
excess
fibrillation
fibrous pericardium
force *v.(* blood)
heart
hypertension
inferior vena cava
inherited difference
interatrial septum
interventricular septum
interventricular sulcus (pl. sulci)
ischemia
layer
left ventricle
lower
lung capillaries
lymphocyte
mediastinal pleura
mediastinum
membraneous sac
microscopic capillaries
midline
mitral
mitral valve
myocardial
myocardial infarction
myocardium
parietal pericardium
parietal serous layer
partition
pericardial cavity
pericardial fluid
pericardial space
pericardium (pl. pericardia)
permeable
propel *v.* (blood)
pulmonary artery
pulmonary circuit
pulmonary circulation
pulmonary vein
pump blood
regulate *v.*
regulation
relax *v.*
relaxation
release *v.*
removal
remove
rhythm
septum (pl. septa)
serous membrane
shock
sternum
superior vena cava
supply
surface
surface of the heart
systemic circuit
systemic circulation
systole
tachycardia
thin-walled
thoracic cavity
transortation
transport *v.*
tricuspid
upper
valve
vein
venous
venule
vessel
visceral pericardium
visceral serous layer

I. General structure of the cardiovascular system

Work with the recommended literature.

1. Read and fill in the gaps

The cardiovascular system is an organ system that transports N…, gases, and wastes to and from cells to help fight diseases and help stabilize body T… and pH to maintain homeostasis. The main components of the cardiovascular system are H., the blood, and the blood vessels. The cardio-vascular system includes pulmonary circulation, a "loop" through the L… where blood is oxygenated; and the S… circulation, a "loop" through the rest of the body to provide oxygenated blood. Also, the digestive system works with the cardiovascular system to provide the nutrients the system needs to keep the heart pumping.

The heart pumps oxygenated blood to the B… and deoxygenated blood to the L…. In the heart there is one V… and one A… for each circulation, and with both a systemic and a pulmonary circulation there are F… chambers in total: left A…, left V…, right A… and R… ventricle. The right atrium, which is the U… chamber of the right side of the heart, receives blood from the upper body through the superior Vena Cava, and from the lower body through the inferior Vena Cava. The blood that is returned to the right atrium is oxygen-poor and passed into the right ventricle to be pumped through the pulmonary A… to the lungs to be re-oxygenated. The left atrium receives new O… blood from the lungs which is passed into the strong left ventricle to be pumped through the aorta to the tissues of the body.

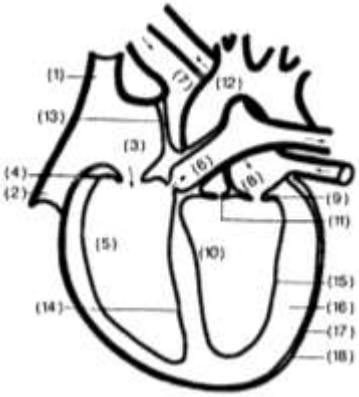
II. Anatomy of the heart

1. Find definitions of the terms:

Aorta	a chamber or cavity to which are connected several chambers or passageways
Atrium	one of the three layers of tissue that form the wall of the heart
Diastole	a hollow muscular organ which receives the blood from the veins and propels it into the arteries-
Endocardium	a thin wall dividing two cavities or masses of softer tissue
Epicardium	contraction of the heart by which the blood is driven through the aorta and pulmonary artery to traverse the systemic and pulmonary circulations
Heart	a large artery of the elastic type which is the main trunk of the systemic arterial system
Myocardium	normal post-systolic dilation of the heart cavities, during which they fill with blood
Pericardium	a normal cavity, as the brain or heart
Septum	the fibro serous membrane, covering the heart and the beginning of the great vessels
Systole	the middle layer of the heart, consisting of cardiac muscle
Ventricle	the innermost tunic of the heart

2. Match the numbers with the terms denoting heart structures:

epicardium, pericardium, myocardium, left atrium, endocardium, right atrium, superior vena cava, pulmonary artery, aorta, inferior vena cava, right ventricle, interventricular septum, pulmonary vein, interatrial septum, left ventricle, tricuspid valve, mitral valve, aortic valve.



1. _____ *10.* _____

2. _____ *11.* _____

3. _____ *12.* _____

4. _____ *13.* _____

5. _____ *14.* _____

6. _____ *15.* _____

7. _____ *16.* _____

8. _____ *17.* _____

9. _____ *18.* _____

3. Make a brief report on the cardiovascular system

III. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

aneurysmo -, angio-, aorto-, arteriolo -, atrio -, athero -, corono-, oxo -, phlebo -, sphygmo-, valvo -, venulo -, de -

IV. Practice

1. Divide the medical words into word-building elements:

bradycardia; tachycardia; arteritis; arteriolitis; phlebotomy; phlebolith; cardiomegaly; coronary; aortic; angiography; arteriosclerosis,

2. Write the combining forms with the following meaning:

vessel; artery; arteriole; vein; venule; atrium; ventricle; valve; pulse; oxygen; heart; aorta; vessel; yellowish plaque; heart; aneurysm

3. Analyze the terms:

Atherosclerosis, endocardium, vasospasm, phlebitis, angiocardiography, tachycardia, bradycardia, cardiocentesis, sphygmogram, atheromatous

4. Match a medical word with its definition:

valvulitis	the radiographic study of the heart and coronary vessels after injection with medium.
cardioangiography	a condition of abnormally high oxygen tension in the blood.
aortic aneurysm	examination of a ventricle of the heart, after injection of a radiopaque contrast medium.
phlebothrombosis	a condition in which the myocardium contracts at a rate greater than 100 beats per minute.
hyperoxia	a spasmodic contraction of a vein.
tachycardia	an inflammatory condition of a valve, especially a cardiac valve.
venospasm	radiographic image of the aorta made after the injection of a radiopaque medium in the blood.
aortogram	an abnormal venous condition in which a clot forms within a vein, usually caused by hemostasis,
ventriculography	a localized dilatation of the wall of the aorta caused by atherosclerosis, hypertension, or, less frequently, syphilis.

5. Build medical words:

a new connection between two arteries; an instrument to measure the pulse; inflammation of small arteries; suture of a vein; tumor of yellowish plaque; pertaining to the atria and ventricles; slow heartbeat; dilation of a lymph vessel; enlargement of the heart; removal of an aneurysm; production of yellowish plaque; abnormal condition of veins and nerves; stone in the artery; death of arteriole.

6. Correct the mistakes in the definitions:

aneurysmoplasty – surgical cutting of arteriole; cardiomyoliposis – condition of fat in muscles; aortosclerosis – tightening of joints; periarteritis – inflammation of arteries; venoperitoneostomy – surgical cutting of veins in peritomium; cardiocele – inflammation of heart; hyperoxia – lack of oxygen; sphygmic – irregular pulse; aneurysmal – pertaining to nerves; vasoneuropathy – disease of nerves and veins; denervate – to repair nerves

7. Do word search using the definitions:

A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*S*	*J*	*D*
S	*V*	*A*	*L*	*V*	*O*	*T*	*O*	*M*	*Y*	*Q*	*I*
O	*P*	*T*	*A*	*N*	*E*	*U*	*R*	*Y*	*S*	*M*	*A*
E	*N*	*D*	*O*	*C*	*A*	*R*	*D*	*I*	*T*	*I*	*S*
A	*B*	*C*	*D*	*F*	*E*	*R*	*Y*	*M*	*O*	*B*	*T*
S	*F*	*A*	*R*	*T*	*E*	*R*	*I*	*O*	*L*	*E*	*O*
E	*T*	*P*	*R*	*E*	*S*	*S*	*U*	*R*	*E*	*B*	*L*
M	*Y*	*O*	*C*	*A*	*R*	*D*	*I*	*U*	*M*	*B*	*R*

1. Surgical cutting of the valve.
2. A sac formed by abnormal dilation of the weakened wall of a blood vessel.
3. Inflammation of the endocardium.
4. Any of the small subdivisions of an artery that form thin-walled vessels ending in capillaries.
5. The force exerted by the blood on the inner walls of the arteries, being relative to the elasticity and diameter of the vessels and the force of the heartbeat.
6. The muscular tissue of the heart.
7. contraction of the heart, during which blood is pumped into the aorta and the arteries that lead to the lungs.
8. The dilatation of the chambers of the heart that follows each contraction, during which they refill with blood.

8. *Unscramble the following to get some words mentioned in the unit. Write down the words you obtained:*

1. A thin layer of tissue that covers the inside spaces of the heart – NEIMAOURCDD

2. The double layer of tissue that surrounds the heart – IRRAICPUMED.

3. A thin layer of tissue and fat that surrounds the heart and protects it, forming the inside layer of the pericardium (= the double layer of tissue that surrounds the heart) – DPMCIRAEUI.

4. A condition produced by faulty nutrition of heart – HAYDRIORTSPCOYD.

5. The contraction of the heart by which the blood is forced out of the chambers and into the aorta and pulmonary artery – SLYSTOE

6. Relatively rapid heart action whether physiological (as after exercise) or pathological – AIDTCYARCHA

7. X-ray study following direct cardiac injection of a radiopaque medium – DYIOCGPAARRNHIOAG

8. Either of two small, hollow spaces, one in each side of the heart, that force blood into the tubes leading from the heart to the other parts – MOGPAHYSGRM.

9.Pain caused by movement – OMESNSAPV

10. Surgical resection or chemical removal of peripheral sympathetic paravertebral ganglia – YANEUMSR

9. For the following abbreviations find the meaning, pertaining to the cardiovascular system:

AAA, AF, AS, ASD, ASHD, AV, BP, CA, CABG, CAD, CC, CCU, CHD, CHF, CV, DVT, ECG, EKG, ECHO, MI, MS, MVP, P, PAT, PTCA, PVC, RV, SA, VSD, VT

V. Check yourself

Analyze the words:
1) phlebolith; 2) cardiodystrophy; 3) aneurysmoplasty; 4) coronary; 5) ventriculography; 6) phlebotomy 7) cardiomyoliposis; 8) hyperoxia; 9) cardiodynia; 10. atriomegaly.

Build medical words:
11) high blood pressure; 12) narrowing of the valve; 13) heart muscle; 14) inflammation of a vein; 15) rapid heartbeat; 16) hardening of arteries; 17) lack of oxygen; 18) visual examination of a ventricle; 19) pertaining to the production of yellowish plaques; 20) resembling a vessel.

UNIT 11
RESPIRATORY SYSTEM

Unit outline
I. Anatomy and physiology of respiration.
II. Combining forms, suffixes terminology.
III. Practice.
IV. Self-check.

Unit objectives:
– to get acquainted with the anatomy and physiology of respiration.
– to learn terminology combining forms and suffixes.
– to learn to analyze and make up medical terms relating to the respiratory system.

Word Index

These are the words used to describe the respiratory system. Read and use your dictionary to look up the meaning of the unknown words:

adenoid
air
air sac
air-conducting tube
airway
airway tree
alveolar
alveolar air
alveolar duct
alveolar epithelial cell
alveolus (pl. alveoli)
apnea
asthma
atelectasis
atmosphere
atmospheric air
atmospheric air pressure
atmospheric pressure
basement membrane
bifurcate
bifurcation
blood gas tension
blood-air barrier
bloodstream
branch
branching
breath
breathe *v.*
breathing
breathing in
breathing out
bronchial branch

bronchiole
bronchus (pl. bronchi)
capacity
capillary
carbon dioxide (CO_2)
chest
chest wall
chronic obstructive pulmonary disease
cilia
clavicular breathing
cluster
collapse
collarbone
contract
convey
costal
cough
coughing
dead space
diaphragm
diffusion
dyspnea
elasticity
emphysema
endothelial cell
envelope
environmental air
epiglottis
exchange
exhalation
exhalatory effort
exhale *v.*
expiration
functional residual capacity
gas
gas exchange
gaseous
gaseous element
glottis
hemithorax
hemoglobin
hemoptysis
hemothorax
high altitude sickness
hilum
humidity
hypercapnia
hyperpnea
hyperventilation
hypopharynx
hypoxia
influenza
inhalation
inhale
inspiration
inspiratory activity
inspiratory/expiratory medullary neurons
intercostal muscles
intranasal space
intrapulmonary bronchi
laryngeal
laryngeal tube
laryngopharynx
laryngoscope
laryngoscopy
laryngotomy
larynx
length of inspiration
lining
lobar
lobe
lobule
lumen
lung
mainstream bronchus
mediastinum
moisture
mouth
mucus
mucus-secreting gland
muscular partition
nasal
nasal cavity
nasal septum

nasopharynx
nitrogen (N)
nose
nostril
oral
oral cavity
oropharynx
oxygen (O_2)
paranasal cavity
paranasal sinus
partial pressure
perfusion
pharyngitis
pharynx
phase of respiration
pleura
pleural space
pleurisy
pleuritis
pneumonia
pneumothorax
pulmonary artery
pulmonary embolism
pulmonary function test
pulmonary segment
pulmonary surfactant
pulmonary vein
regular breathing
relax
residual volume
respiration
respiratory acidosis
respiratory alkalosis
respiratory apparatus
respiratory center
respiratory cycle
respiratory distress
respiratory mucosa
respiratory rate
respiratory system
respiratory tract
respiratory tree
rhinitis
rhinoplasty
rhinorrhea
rib
rib cage
sac
segment
segmental
serous membrane
sinus
sneeze *v.*
sneezing
spirometry
subsegmental
terminal
thoracic
thoracic cavity
thorax
throat
tidal volume
tonsils
total lung capacity
trachea
tracheobronchial tree
tracheostomy
transport *v.*
uvula
Valsalva maneuver
ventilation
ventilation/perfusion ratio
ventilator volume
ventilatory system
vibrate *v.*
vibration
visceral pleura
vocal cord
voice box
voice production
volume
waste product

I. Anatomy and Physiology of Respiration.

Work with the recommended literature and do ex. 1–4.

1. Answer the questions:

Where are the lungs located?
What is the function of the fine hairs lining the nostrils?
What is the function of the epiglottis?
What prevents the trachea from collapsing?
What happens in the lungs after inhalation?
What gas is inhaled and what gas is exhaled?
What lies inferior to the lungs?
Are the left and right lungs identical, and if not, what is the difference?
What helps to expel foreign materials getting into the larynx during deglutition?
Where do the smallest bronchioles end?
How do they call microscopic blood vessels that exchange material between the blood and body tissues?

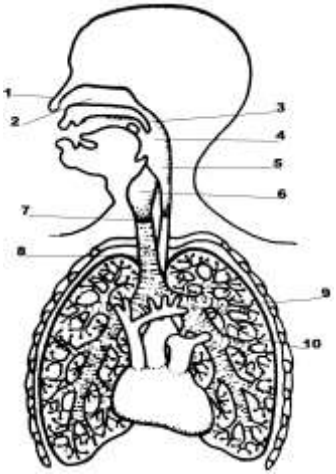
2. Match the terms and their definitions:

alveolus, bronchiole, bronchus, carbon dioxide, diaphragm, larynx, lung, mediastinum, nitrogen, oxygen, pharynx, pleura, trachea

- the musculomembranous partition between the abdominal and thoracic cavities.
- the organ of voice production; the part of the respiratory tract between the pharynx and the trachea;.
- one of a pair of light, spongy organs in the thorax, constituting the main component of the respiratory system*;*
- the median partition of the thoracic cavity, containing all the thoracic viscera and structures except the lungs*;*
- a gaseous element, atomic no. 7, forms about 78.084 % of the volume of the atmosphere*;*
- a gaseous element, atomic no. 8; an abundant and widely distributed chemical element, which combines with most of the other elements to form oxides and is essential to animal and plant life*;*
- the serous membrane enveloping the lungs and lining the walls of the pleural cavity*;*
- the air tube extending from the larynx into the thorax where it bifurcates into the right and left main bronchi*;*
- the upper expanded portion of the digestive tube, between the esophagus below and the mouth and nasal cavities above and in front*;*
- one of six generations of finer subdivisions of the bronchi, all less than 1 mm in diameter*;*
- one of the two subdivisions of the trachea serving to convey air to and from the lungs*;*

– one of the thin-walled terminal dilations of the respiratory bronchioles, across which gas exchange occurs between alveolar air and the pulmonary capillaries*;*
– the product of the combustion of carbon with oxygen.

3. Write the structures of the respiratory system in the picture:



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10_____

4. Draw the passageway of air in the organism:

Nose → N__ C__ → P __ → N__ → O__ → H__ → L__ → T__ → B__ → B ___ → A__

II. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

alveolo -, anthraco -, bronchio -, bronchiolo -, broncho-, conio-, cyano-, epiglotto-, lobo-, naso-, ortho-, pectoro-, phreno-, pneumono-, pleuro-pulmono-, spiro-, sinuso-, -capnia, -osmia, -phonia, -pnea, -thorax, em-

III. Practice

1. Divide the terms into word-building components:

hyperosmia, rhinocheiloplasty, polyphonic, epiglottidectomy, bronchorrhaphy, cyanopsia, pyopneumocholecystitis, tracheomegaly, pleurolysis.

2. Write the meaning of the combining forms:

cyano-; -phonia; pneumo-; lobo-; phreno-; pectoro-; pleuro-; spiro-; sinuso-; naso-; rhino-; tonsillo- ; pharyngo-; laryngo-; bronchiolo-; conio-; anthraco-; alveolo-; oxo-; -osmia; -capnia; -ptysis; -pnea; ortho-; -thorax; pulmono-; pneumono-; epiglotto-; tracheo-; broncho-; bronchio-; em-.

3. Give the meaning of the following terms:

Pneumopyothorax; nasopharyngitis; bronchiolar; hemothorax; pneumonia; bronchiectasis; eupnea; spirometry;anthracosis.

4. Match the medical words and common words.

pharyngitis	**cough**
rhinitis	**hoarseness**
bronchitis	**spitting of blood**
laryngitis	**sore throat**
dyspnea	**cold**
anosmia	**normal breathing**
hemoptysis	**spitting of pus**
anoxia	**choking**
pyoptysis	**blue vision**
eupnea	**shortness of breath**
cyanopsia	**loss of smell sense**

5. Complete the terms with a word-building element

Trache – inflammation of the trachea, pharyngo – paralysis of the pharynx, -pnea – no breathing, -ptosis – drooping of the voice box, -ectasia – dilation of small bronchi, -rrhagia – flow of blood from the windpipe, spiro- – instrument for recording breathing, pleuro- – washing of the pleura, rhino – condition of having stones in the nose, -pexy – fixation of the diaphragm and colon

6. Build medical terms:

pertaining to bronchi and lungs; an instrument for visual examination of bronchi; removal of a lung; incomplete expansion; pleural pain; increased breathing; inflammation of the voice box; surgical repair of the windpipe; abnormal condition of dust in the lungs.

7 . Each term has one spelling mistake. Find and correct it.

tracheorhagia, rhinochieloplasty, bronchotrhaphy, pyopneumocholicystitis, pleurolisis, hyperommia, polyfonic, pharyntoplegia, aphnea, laryngoposis, spirhograph, trachemegaly, pleurocysis, rhinolit, phrenocollonopexy, hyppocapnia, bronchioloectasia, xyanopsia

8. *Arrange the letters in the words from this in the unit:*

NIRETOIHACCBSS, PAENUE, ENAOEHSRSS, EALGAEMCTRHY, YPOISYTSP, LISPORLYEUS, APSAIYDGH, IYAPISHHGITRRONN, NPCAASOYI, AHRIMAGPD

9. Of the following abbreviations, find those denoting diseases or pathologic conditions:

ARDS, CO2, COPD, DOE, ENT, IPPB, IRDS, O_2, PCO_2, PFT, PND, PO_2, RD, RDS, SOB, T&A, TPR, URI, VC

IV. Check yourself

1.Analyze the words:

1) pulmonary; 2) pleurolysis; 3) anosmia; 4) anoxia; 5) cyanopsia; 6) dysphasia; 7) dysphagia; 8) hemoptysis; 9) bronchiolitis; 10) pharyngostenosis.

2. Build medical words:

11) pertaining to bronchi and lungs; 12) instrument to visually examine the bronchi; 13) removal of a lobe of the lung; 14) increased (expressive) breathing; 15) inflammation of the voice box; 16) abnormal condition of dust in the lungs; 17) lack of sense of smell; 18) inflammation of small branches of bronchi; 19) difficult breathing; 20) blood in the thoracic cavity.

UNIT 12
BLOOD AND LYMPHATIC SYSTEMS

Unit outline
I. Blood and lymphatic systems (composition, anatomy, functions).
II. Combining forms and suffixes.
III. Practice.
IV. Self-check.

Unit objectives:
- to acquire basic knowledge about blood and lymph;
- to learn the terms denoting the components of blood and lymphatic system;
- to study combining forms and suffixes;
- to build medical terms related to blood and lymphatic systems.

Word Index

These are the words used to describe the blood and lymphatic system. Read and use your dictionary to look up the meaning of the unknown words:

ABO blood groups
acquire *v.*
agglutination
anemia
anemic
blood
blood cell
blood components
blood count
blood donor
blood glucose
blood group
blood group specificity
blood grouping
blood sugar
blood transfusion
compatible donor
donate *v.* (blood)

erythrocyte
gamma globulin
group A/ AB/ B/ O
hemoglobin
hemorrhage
hematology
hemodialysis
hemolysis
hemolytic transfusion reaction
hyperbilirubinemia
hyperglycemia
dissolve *v.*
immunoglobulin A (IgA)
immunoglobulin G (IgG)
immunoglobulin M (IgM)
liquid
liquid matrix
matching for the ABO system
leukocyte
lymph
lymphocyte
nutrient
oxygen
oxygenated
oxygenation
oxygen-poor
recipient type
red blood cell (RBC)
plasma
plasma protein
platelet
polymorphism
Rh (rhesus) system
rich in oxygen
serum
thrombocyte
thrombolytic
waste product
white blood cell (WBC)

I. Blood and lymphatic systems (composition, anatomy, functions)

Work with the recommended literature and do ex. 1–4.

1. Match the terms and their definitions:

artery, blood, erythrocyte, hemoglobin, leukocyte, platelet, vessel, plasma, vein, thrombus, aorta, clot

- a mature red blood cell**;**
- the fluid (noncellular) portion of the circulating blood, as distinguished;
- from the serum obtained after coagulation**;**
- an irregularly shaped disk-like cytoplasmic fragment of a;
- megakaryocyte that is found in the peripheral blood where it functions;
- in clotting**;**
- the main vessel in the arterial network, which conveys oxygen-rich blood from the heart to all parts of the body except the lungs;
- a clot in the cardiovascular system formed during life from constituents of blood**;**
- a soft thick lump or mass;
- the "circulating tissue" of the body; the fluid and its suspended formed elements that are circulated through the heart, arteries, capillaries, and veins
- white blood cell**;**
- a relatively thick-walled, muscular, pulsating blood vessel conveying;
- blood in a direction away from the heart**;**

– the red respiratory protein of erythrocytes**;**
– a structure conveying or containing a fluid, especially a liquid;
– a blood vessel carrying blood toward the heart.

2. Complete the following statements:

– Lymph is interstitial fluid which …
– Lymph has 1) .. color and contains 2)….
– The cellular composition of lymph includes….
– The lymph is carried through 1) ..., 2) ... , 3) ..., 4) … , 5) … , 6) …
– The lymph nodes are mainly concentrated in the following regions of the body: 1) …, 2) …, 3) ..., 4) ...
– The 1) … and 2) … are composed of lymphatic tissue.
– The spleen is located in …
– The thymus manufactures …
– T-cells migrate to the site of antigens and …
– B-cells destroy antigens by …

3. Make a brief report about blood and lymphatic systems.

II. Combining forms and suffixes

Write out the meaning of the combining forms. Use the Appendix:

chromo-, eosino-, erythro-, fibrino-, granulo-, immuno-, iso-, lympho-, mono-, normo-, neutro-, nucleo-, poikilo-, reticulo-, sidero-, sphero-, spleno-, thermo, thrombo-, -cytosis, -globin, -globulin, -pheresis, -philia, -phoresis

III. Practice

1. Give the meaning of the following combining forms and suffixes:

poikilo -; -pheresis; -gram; lymphadeno-; immuno-; -poiesis; -phagia; iso-; sidero-; -stasis; -blast; chromo- ; eosino-

2. Match the terms with their definitions:

1) neutropenia	a) stoppage of blood
2) splenomegaly	b) formation of bone marrow
3) lymphangiectasia	c) incision into the spleen
4) hemolysis	d) disease condition of platelets
5) monocytoblast	e) lack of white blood cells
6) myelogenesis	f) enlargement of the spleen
7) thrombopathy	g) destruction of blood
8) hematostasis	h) lack of neutrophils
9) leukopenia	i) embryonic single cell
10) splenotomy	j) dilation of lymph vessels

3. Choose the correct answer to fill in the gap:

1. A fatty plaque deposit within an artery is called an…. This condition is characteristic of atherosclerosis.
   a) angiitis
   b) angiostenosis
   c) arteriosclerosis
   d) atheroma
2. Inflammation of a vein is known as ….
   a) angiitis
   b) arteritis
   c) phlebitis
   d) phlebostenosis
3. The term meaning any abnormal or pathologic condition of the blood is ….
   a) anemia
   b) dyscrasia
   c) hemochromatosis
   d) septicemia
4. The term meaning the surgical removal of an aneurysm is ….
   a) aneurysmectomy
   b) aneurysmoplasty
   c) aneurysmorrhaphy
   d) aneurysmotomy
5. An inflammation involving many arteries is ….
   a) polyphlebitis
   b) monoangiitis
   c) polyarteritis
   d) hyperatheritis
6. Abnormally small blood cell is ….
   a) megacyte
   b) microcyte
   c) macrocyte
   d) monocyte
7. An inflammation involving heart sac is ….
   a) endocarditis
   b) myocarditis
   c) pericarditis
   d) epicarditis
8. Condition, characterized by a considerable variation in the size of cells, especially RBC is ….
   a) erythrocytosis
   b) eosinocytosis
   c) erythropenia
   d) anisocytosis
9. A medical term, referring to a blood specialist, is ….
   a) hemologist
   b) hematologist
   c) hemologic
   d) hematopathologist
10. A low platelet count is ….
   a) thrombopoietic
   b) monocytopenia
   c) thrombocytopenia
   d) erythropoiesis

4. Find and correct the mistakes in the definitions:

hemocytoblast – blood cell; hemorrhage- blood swelling; erythropoiesis – pertaining to formation of RBC; erythropenia – formation of RBC; hypochromia – excessive color; leucopenia – lack of RBC; eosinopenia – lack of WBC; granulocytosis – abnormal condition of rosy blood cells; myeloblast – immature muscle cell; myeloid – formation of bone marrow.

5. *Each word has a spelling mistake. Find and correct it:*

hemorrhadge, hypockromia, esinopenia, granolocytosis, myelloid, neutrokytopenia, lymphagiectasia, ebryoblast, myelopoesis, thromobopathy, hemosytasis, splenoctomy.

6. Build medical terms and analyze them. Follow the example:

Example: excessive + chromo + condition = hyperchromia (condition of excessive color)

- meta + bone marrow + cyto + abnormal condition =
- big + nucleus + tic =
- electro + transmission =
- blood + cyto + immature =
- lympho + resembling =
- sub + thymus + surgical puncture =
- white + poison + ic =
- all + cyto + lack =
- unequal + cell + destruction =
- many + shape + nucleo + pertaining to =

7. *Unscramble the following to get some words mentioned in the unit:*

1. A clear liquid that transports useful substances around the body, and carries waste matter, such as unwanted bacteria, away from body tissue in order to prevent infection – MHLPY.

2. An organ near the stomach that produces and cleans the body's blood – LNEESP.

3. A small gland behind the breastbone that helps build the immune system sound – YSHTUM.

4. A white blood cell that contains proteins called granules that help the body fight against infection and allergies – GTRLEOCAUNY.

5. Immature red blood cells (RBCs); its count helps evaluate anemia or bone marrow function – TEYOCRLEICUT.

6. Enlargement in one or more lymph nodes, usually due to infection – MTLSIPADIHYNE.

7. Hardening of the walls of the vascular system – AILSOOSCSNEGRI.

8. A surgical procedure performed to repair a weak area in the aorta – TOYEMCSNRYEUAM.

9. Specialized doctors who research, diagnose, treat, and help prevent blood-related conditions and disease – TTAESLMOHGOI.

10. Means that the red blood cells have less color than normal when examined under a microscope – APCOIORYHMH.

8. Study the abbreviations and fill in the chart (Use Appendix, if necessary):

Diseases	
Blood cells	
Blood test parameters	

ABG, ABO, alk phos, ALL, AML, APTT, CBC, CLL, CML, eos, ESR, sed rate, Hb, Hgb,HD, ITP, lymphos, MCH, MCHC, MCV, Na, PA, PCV, poly, PMN, PMNL, PT, RBC, rbc, segs, WBC, wbc, diff

IV. Check yourself

Build medical words:

1) lack of round cells; 2) no formation of granule cells; 3) cell which eats; 4) destruction of fibrin; 5) pertaining to nuclei of many shapes; 6) lack of iron; 7) pertaining to surrounding the thymus gland; 8) blood protein; 9) surgical removal of the lymph gland; 10) surgical puncture of the bone marrow.

Analyze the words:

11) thromboblast; 12) reticulocyte; 13) promyelocytosis; 14) microkaryotic; 15) pancytopenia; 16) mononucleosis; 17) plasmapheresis; 18) hypochromia; 19) poikilocytosis; 20) leucotoxic.

UNIT 13
MUSCULOSKELETAL SYSTEM

Unit outline

I. Organization of the musculoskeletal system.
II. Combining forms used to describe bones, joints, and muscles.
III. Practice.
IV. Self-check.

Unit objectives:

– learn the terms relating to the structure and function of bones, joints, and muscles;
– locate and name the major bones of the body;
– make words with and analyze the combining forms, prefixes, and suffixes; and
– learn the terminology relating to the major types of musculoskeletal disease conditions.

Word Index

These are the words used to describe the musculoskeletal system. Read and use your dictionary to look up the meaning of the unknown words:

accumulate *v.*
ankle
appendicular
articulate *v.*
axial
band
base of the spinal column
be arranged
be attached to
be composed of
be connected with
be controlled by
be formed of
bind together
bone
bone formation
bone segment
bone structure
branchial arch
breastbone(sternum)
bundle
calcium
cardiac
cardiac muscle
cartilage
cartilage surface
cartilage tissue
cervical vertebrae
cheekbone
coccyx
collarbone
connect *v.*
conscious
contractile cell
cover *v.*
cranial bone
cranial fossa
cranial cavity
curved
dense
depositing calcium salts
diaphysis
disk
division
elbow
elongated
endocrine
epiphysis
excessive
expansion
extend *v.*
extension
extracellular
eyesocket (orbit)
facial bone
facilitate *v.*
fascia
feet
femur
fiber
fibrous
fibula
filamentous structure
flat bone
flesh
flexibility
flexible
flexion
fluid
force-generated
forearm
forehead
framework
frontal bone
glucose homeostasis
gross structure

head of the humerus
health-related fitness
hipbone
horizontal portion
humerus
hyoidbone
hypomineralized
iliac crest
internal reservoir for calcium
internal skeleton
intra-articular fibrocartilage
involuntary (visceral) muscles
irregular shape
joint
knee
kneecap
lack of flexibility
ligament
limb (extremity)
lining
locomotion
long bone
loose
lower arm
lower back
lower extremities
lower leg
lumbar vertebrae
maintain *v.*
mass
maxillary bone
meniscus
metatarsal bone
motion
movement
multiple fracture
muscle
muscle attachment
muscle fiber
musculoskeletal system
nasal bone
occipital bone
osseous tissue
parietal bone
passage of calcium
pectoral (shoulder) girdle
pelvic bone
pelvic girdle (hip)
pelvis
periosteum
phalange
pharyngeal arch
posture
prevent *v.*
pubis
radius
range of motion
regulation
rib
rib cage
sacroiliac
sacrum
salt
separate
sesamoid bone
set of vertebrae
shaft
sheet of fibers
short bone
shoulder blade (scapula)
shoulder bone
side
sinuses
skeletal muscle
skeleton
skull
smooth
smooth muscle
sphenoid
spinal cord
spine
striated (voluntary, skeletal) muscles

strong
supply of phosphorus
support
suprascapular ligament
surface area
surface of the bone
synovial
temporal bone
tendon
thigh
thigh bone (femur)
thigh bone arc
thoracic vertebrae
thumb
tibia (shinbone)
toe
triangular bone
true hinge joint
trunk
tubular structure
ulna
upper arm
upper extremities
upper jaw (maxillae)
vertebrae
vertebral (spinal) column
vitamin D
voluntary
weight-bearing
wrist
zygomatic bone
zygomatic process

I. Organization of the musculoskeletal system.

Work with the recommended literature and do ex. 1–4.

1. Do the multiple choice test:

1. The functions of the musculoskeletal system include:
   A) Support, protection, movement, storage, and blood cell formation;
   B) Movement, sensation, protection;
   C) Ossification, storage of calcium, control;
   D) Protection, separation, and support.
2. The number of bones in the body is:
   A) 200;
   B) 205;
   C) 206;
   D) 210.
3. The formation of bones depends on:
   A) Storage of calcium and phosphorus;
   B) Release of the parathyroid hormone;
   C) Enzyme production;
   D) Supply of calcium and phosphorus along with vitamin D.
4. There are over … muscles in the body:
   A) 600;
   B) 605;
   C) 606;
   D) 610.
5. The muscles constitute approximately … percent of the body weight.
   A) 20;
   B) 30;
   C) 40;
   D) 50.
6. There are … types of muscles.
   A) 2;
   B) 3;
   C) 4;
   D) 5.

2. Match the term with its definition:

diaphysis, epiphysis, spinal column, vertebra (vertebrae *pl*.), tendon, ligament, acetabulum, aponeurosis, fascia, ossification, synovial membrane, bursa, lamina, calcium, phosphorus

- shaft of a bone;
- one of the segments of the spinal column**;**
- the series of vertebrae that extend from the cranium to the coccyx, providing support and forming a flexible bony case for the spinal cord;
- part of a long bone developed from a center of ossification distinct from that of the shaft and separated at first from the latter by a layer of cartilage;
- connective tissue binding bones to muscles;
- rounded depression, or socket, in the pelvic bone. Situated where the thigh bone joins with the pelvis;
- connective tissue binding bones to bones;
- flat, fibrous connective tissue which attaches muscles to bones or other tissue (type of tendon);
- process of bone formation;
- surrounds a freely movable joint and secretes a fluid that lubricates the joint cavity;
- fibrous membrane separating and enveloping muscle tissue;
- sac of fluid located at and around joints which act as cushions and reduce friction;
- a metallic bivalent element; atomic no. 20;
- thin plate or flat layer;
- a nonmetallic chemical element, atomic no. 15;

3. Fill in the gaps with the type of muscles given below:

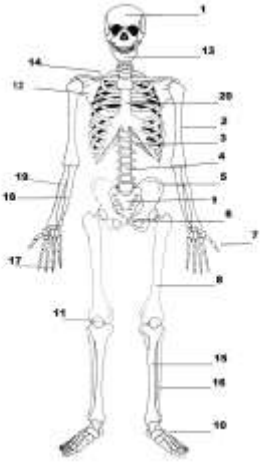
a) **striated muscles**, also called voluntary or skeletal; b) **cardiac muscle** or heart muscle; c) **smooth muscles**, also called involuntary or visceral.

1. We have conscious control over the activity of these muscles. The muscle fibers move all the bones, as well as the face and eyes. These muscle fibers (cells) contain many nuclei and have dark and light bands, or fibrils, in their cytoplasm.

2. Muscle fibers which move our internal organs such as the digestive tract, blood vessels, and secretory ducts leading from glands. We have no conscious control over these muscles. They are called so because they have no dark and light fibrils in their cytoplasm. There is only one nucleus in a cell of these muscles.

3. This muscle is involuntary but it has dark and light fibrils in its cytoplasm.

4. Write down the names of the bones:



5. Make a brief report about the musculoskeletal system.

II. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix

articulo-, burso-, calcio-, calco-, calcaneo-, carpo-, costo-, fascio-, femoro-, fibulo-, ischio-, ligamento-, mandibulo-, maxillo-, metacarpo-, myoso-, olecrano-, patello-, pelvi-, phalango-, pubo-, radio-, sacro-, scapulo-, sterno-, submaxillo-, syndesmo-, synovio-, teno-, tendo-, tendino-, tibio-, ulno-leiomyo-, rhabdomyo-, -porosis, -sthenia, -physis

III. Practice

1. Match common English names for bones with their medical equivalents:

1. cranium	a. wrist
2. carpus	b. medial lower arm bone
3. clavicle	c. collar bone
4. sternum	d. hand bones
5. humerus	e. heel bone
6. ulna	f. breastbone
7. metacarpals	g. upper arm bone
8. femur	h. thigh bone
9. patella	i. shin bone
10. tibia	g. smaller of two leg bones
11. fibula	k. kneecap
12. calcaneus	l. skull

2. Write singular or plural of the terms below:

Singular	***Plural***
clavicle	
ischium	
	scapulae
fascia	
aponeurosis	
acetabulum	
	phalanges
calcaneus	

3. Build medical terms:

immature bone cell; softening of cartilage; pertaining to the sacrum and the ilium; abnormal condition of vertebra; instrument to cut bone; humpback; pertaining to the tailbone; inflammation of bone and joints; removal of the laminae of a vertebral arch; a disease of joints and eyes; combined surgical repair of both tendons and muscles; pertaining to metacarpus and phalanges; relating to the ischium and the anus; abnormal condition of porous bones; bad bone development; inflammation of bone and bone marrow; dead bone tissue; tumor of bone marrow; surgical repair of a ligament; inflammation of a tendon and synovial membrane; pus in a joint; lack of cartilage formation

4. Give the definition:

Ischioneuralgia; sarcomatoid; fibrositis; pelvivertebral; myoatrophy; synovioma; scapuloperiosteal; mandibulomaxillary; rhabdomyosarcoma; kyphotic; myocardiorrhaphy; ankylopoietic; scoliometer; osteochondrosis.

5. Find and correct the mistake in the medical words:

1) An attraction to calcium – calicophilia; 2) a disease of the vertebra – vertebropathy; 3) an instrument to cut the skull – craniotomy; 4) surgical attachment of a fascia to another fascia - fasciadesis; 5) bad development of the spinal cord – rachiodysplasia; 6) pain in the kneecap – patelloalgia; 7) pertaining to the ilium and coccyx – ileococcygeal; 8) visual examination of the interior of a joint – arthrobiopsy; 9) tumor of immature cells of the cartilage – condroblastoma; 10) fusion of fingers or toes – polydactyly.

6. Put the letters of the following medical words into the correct order:

MOYBLATS, CELESACRO, BUSROLTHI, CARPITSI, TENOSISLY, COTSOGECIN, ARTHRODAYIN

7. Find and correct spelling mistakes (be careful, not all of the terms are wrong!):

1) falangal; 2) tendun; 3) kalcium; 4) cartilage; 5) decacification; 6) myoasthenia; 7) spondylosyndesis; 8) osseous; 9) pseudohypertrophy; 10) rabdomyosarcoma.

8. Write your abbreviations for the following terms. Check your answers using the Appendix:

anterior cruciate ligament, first cervical vertebra, second cervical vertebra, calcium, congenital dislocation of the hip, degenerative joint disease, electromyography, fracture, hip disarticulation, herniated nucleus pulposus (herniated disk), hemipelvectomy, intramuscular, intercostal space, knee disarticulation, first lumbar vertebra, musculoskeletal, orthopedics, posterior cruciate ligament, rheumatoid arthritis, range of motion, shoulder disarticulation, total hip arthroplasty, total hip replacement, total knee arthroplasty, total knee replacement

V. Check yourself

Analyze the words:

1) Chondrogenesis; 2) spondylodynia; 3) patellar; 4) pubic; 5) kyphoscoliosis; 6) tenomyotomy; 7) muscular biopsy; 8) myokinetic; 9) periosteitis; 10) osteocyte.

Build medical words:

11) Pertaining to the lower back; 12) lateral curvature of the spine; 13) relating to two joints; 14) pertaining to the tibia and femur; 15) bad sensation; 16) pertaining to the production of the connective tissue; 17) inflammation of many muscles; 18) pertaining to death of bones; 19) specialist in the study of bones; 20) an immature bone cell.

UNIT 14
SKIN

Unit outline

I. Structure of the skin.
II. Combining forms which are related to the specialty of dermatology.
III. Practice.
IV. Self-check.

Unit objectives:

– identify the layers of the skin and the accessory structures which are associated with the skin;
– build medical terms using the combining forms that are related to the specialty of dermatology;
– become familiar with terms used to describe lesions, symptoms, and pathological conditions that relate to the skin.

Word Index

These are the words used to describe the skin. Read and use your dictionary to look up the meaning of the unknown words:

accessory organs
bacterial invasion
blood vessel
body temperature
delicate membrane
collagenic
corium (dermis)
deeper tissues
elastic
epidermis
excretion
gland
hair
hair follicle
hair root
heat
integumentary system
invasion by microbes
liquid
loss of water
nail
nerve ending
nerve fiber
outer covering
pain
receptor
sebaceous gland
secrete
secretion
secretory ducts
sensation
skin
slightly acid
subcutaneous tissue
surface
sweat
sweat gland
temperature
temperature regulation (thermoregulation)
touch

I. Structure of the skin

Work with the recommended literature and do ex. 1–4.

I. Delete the odd ones:

1. The skin performs the following functions:

protection of internal structures, prevention of entry of disease-causing microorganisms, temperature regulation, excretion through perspiration, sensation, enzyme production, pigmentary protection against ultraviolet sun rays, and production of vitamin D.

2. The accessory organs of the skin are ***hair, nails, glands, and epidermis.***

3. Hair is composed of cornified threads of cells that develop from the epidermis and cover most of the body. Each hair has a ***lunula, medulla, cortex, and cuticle.***

4. Like hair, nails develop from the epidermis. These hard plates of keratinized cells are at the ends of fingers and toes. Nails appear pink because their translucency reveals the vascular tissue beneath. They aid in grasping objects, scratching, and protecting fingers and toes. The components of the nail are ***the lunula, body, head, root, and free edge.***

5. The basal layer of the epidermis contains melanocytes. ***They form and contain a black pigment called melanin. The amount of this pigment accounts for the color of the skin. Also, it keeps excessive ultraviolet rays from burning the skin. Moreover, this pigment assists in the production of collagen.*** Oriental skin has a greater amount of carotene producing a yellowish tinge. Albinism is a condition where the skin does not produce melanin.

6. The skin contains three types of glands that produce important secretions. These glands under the skin are ***the sebaceous, sweat, ceruminous, and salivary glands.***

2. Insert the appropriate term:

1. The _____ glands produce an oily secretion called sebum. It helps to lubricate the surface of the skin.
2. The _____ glands produce a watery secretion called sweat. It helps to cool the body as it evaporates from the skin's surface.
3. The _____ glands are found in the external part of the ear canal and produce ear wax or cerumen.
   a) **sebaceous**; b) **sweat**; c) **ceruminous**.
4. The three layers of the skin are (1)… a thin, cellular membrane layer; (2) … dense, fibrous, connective tissue layer; (3) … thick, fat-containing tissue.
   a) **epidermis**; b) **subcutaneous tissue** or **hypodermis;** c) **corium** or **dermis**.

3. Complete the statements:

1. The outer layer of the skin is the ….
2. Sebaceous glands secrete ….
3. The three types of glands found in the skin are ….
4. The pigment found in melanocytes is ….

4. Make a brief report about the skin.

II. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

albo-; albino-; cutaneo-; erythemo-; hidro-;kerato-; myco-; onycho-; pachy-; pachyo-; sebo-; squamo-; tricho-; unguo-; xantho-; xero-; -derma

III. Practice

1. Give the combining forms for the following:

Yellow …; horny …; fat …; hair …; sweat …; fungus …; nail (used to describe the structure) …; white …; sebum …; black …; dry…

2. Correct spelling mistakes:

1) cutenous; 2) mellanoma; 3) squaymous; 4) seborhagia; 5) unguel; 6) steatopathy; 7) adenocanceroma.

3. Analyze the words:

onychocryptosis; mycodermatitis; albinotic; keratopachyderma; xanthomatosis; seborrheic; histiocytic; trichatrophy; histomorphometry; melanoacanthoma; dermatopolyneuritis

4. Build medical words:

Surgical repair of the skin …; inflammation of the nails …; dry skin …; yellow tumor …; pertaining to under the nail …; lack of sweat …; fat cell …; abnormal condition of a fungus in the hair …; formation of a disease in tissues …; an agent, promoting growth of hair …; study about the nature of tissues …; black tongue…

5. Find combining forms, denoting different colors. They can be read from left to right, backward, up and down. A total of five combining elements and their synonyms can be found:

A	*V*	*O*	*N*	*A*	*L*	*E*	*M*
L	*X*	*A*	*N*	*T*	*H*	*O*	*U*
B	*L*	*O*	*K*	*U*	*E*	*L*	*K*
O	*M*	*E*	*L*	*E*	*N*	*E*	*A*
E	*R*	*Y*	*T*	*H*	*R*	*O*	*L*

6. Match the medical term and the corresponding definition:
leukotrichia, acantholysis, dermatoautoplasty, trichoesthesia, dermatophobia, dyschromia, hidradenoma, mycostatic, dermatoneurosis, xerotic

– separation of individual epidermal keratinocytes from their neighbor;
– a benign neoplasm derived from epithelial cells of sweat glands;
– whiteness of the hair;
– discoloration of the skin;
– the sensation felt when a hair is touched;
– having an inhibiting action upon the growth of fungi;
– autotransplantation of skin taken from another part of the patient's own body;
– relating to the pathological dryness of the skin;
– any cutaneous eruption due to emotional stimuli;
– morbid fear of acquiring a skin disease.

7. Suggest one more variant for the following medical terms:

steatopathy; **leuko**derma; **histio**cyte; epi**dermo**lysis; **hypodermic**; sub**gloss**al

8. Unscramble the following to get some words mentioned in the unit:

1. Something extra that improves or completes the thing it is added to – ACECRYSSO.

2. The scientific study of the skin and its diseases respiration – EDOYTMGOALR.

3. Of, pertaining to, having, or producing pigment – PGIRYNMATE.

4. Wavelength that is after the violet (= light purple) end of the range of colors that can be seen by humans – TIALETRUOLV.

5. The visible portion of the distal nail matrix that extends beyond the proximal nailfold – NAULLU.

6. The inner part of a body part or organ – MUALLED.

7. The outer layer, especially of the brain and other organs – RXOCET.

8. The thin skin at the base of the nails on the fingers and toes – LEITCCU.

9. Relating to simple, coiled, tubular glands made up of an inner secretory layer of cells and an outer myoepithelial layer of cells – EMISRCUNUO.

10. To use a substance such as oil to make a device operate more easily, or to prevent something sticking or rubbing – LURBTECIA.

9. Write the meaning of the abbreviatons:

decub, derm, ID, SLE, XP, XDP

Check yourself

Analyze the words:

1) Pyoderma; 2) epidermoid; 3) keratosis; 4) squamous; 5) mycotoxicosis; 6) dermatoconiosis; 7) seborrhea; 8) hidrotic; 9) onychomycosis; 10) causalgia.

Build medical words:

11) Bad nourishment of nails; 12) inflammation of sweat gland; 13) formation of sweat; 14) inflammation of skin and joints; 15) pertaining to the nail; 16) an instrument to cut the skin; 17) abnormal thickness of the fingernails or toenails; 18) inflammation of muscles and skin; 19) pertaining to inside skin; 20) red skin.

UNIT 15
SENSE ORGANS

Unit outline

I. The eye (anatomy and physiology).
II. The ear (anatomy and physiology).
III. Combining forms and suffixes.
IV. Practice.
V. Self-check.

Unit objectives:

- to learn the terms which describe the anatomical structure and physiology of the eye;
- to learn the terms which describe the anatomical structure and physiology of the ear;
- to study combining forms and terminology;
- to build medical terms related to sense organs.

Word Index

These are the words used to describe the sense organs (the eye and the ear). Read and use your dictionary to look up the meaning of the unknown words:

accommodation	astigmatism
acoustic	audiometry
acoustic nerve	auditory canal
acuity	auditory nerve fibers
afferent sensory neuron	auditory tube
amblyopia	auditory ossicles (small bones)
anterior chamber	auricle
aqueous humor	balance

basilar membrane
biconcave lens
biconvex lens
blepharitis
blind spot
blindness
bulb of the eye
cataract
central artery
central hearing loss
central vein
cerebral cortex
cerumen
ceruminous
ceruminous gland
chambers of the eye
choroid
choroid layer
cilia
ciliary body
coat (layer; tunic) of the eye
cochlea
cochlear nerve
cochlear duct
color blindness
color vision
concave lens
conductive hearing loss
cones
conjunctiva
convex lens
cornea
dacryorrhea
dark adaptation
deafness
decibel
diopter
ear
eardrum
ear wax
emmetropia
endolymph
equilibrium
esotropia
eustachian tube
excretory lacrimal duct
exotropia
external auditory
external auditory meatus
external ear
external otitis
extraocular muscles
eye
eyeball
eyelid
facial nerve
farsightedness
fenestration
focus
footplate of stapes in oval window
fovea centralis
frequency
glaucoma
graft
gustatory organ
hair cell
hardeolum
hearing
hearing loss
heat
helicotrema
helix
hertz
hypermetropia
hyperopia
hyperopic
incus
inferior concha
inner ear
intensity
interior meatus
internal ear
intraocular pressure
iris

keratoconus
labyrinth (osseous/membranous)
lacrimal apparatus
lacrimal drainage system
lacrimal duct
lacrimal fluid
lacrimal gland
lacrimal sac
lens
light
light rays
lingual papillae
lobe
loudness
macrotia
macula lutea
macular degeneration
malleus
mastoiditis
meatus
Meniere's syndrome (endolymphatic hydrops)
microtia
middle concha
middle ear
miotics
motion sickness
myopia
nasolacrimal duct
nearsightedness
neuroepithelium
nystagmus
occipital lobe
ophthalmalgia
optic chiasma
optic disk
optic nerve
optic tract
optometry
ora serrata
orbit
organ of Corti
organ of hearing and balance
organ of vision
ossicle
otalgia
otitis media
otoplasty
otosclerosis
outer ear
oval window
palpebral fissure
perilymph
photophobia
photoreceptor cell
pinna
pitch
posterior chamber
presbycusis
presbyopia
pressure
prosthesis
puncta lacrimalia
pupil
purulent
receptor
receptive olfactory hair
refract
refraction
retina
retinal artery
retinal detachment
retinal vein
retinitis pigmentosa
retinopathy
rods
round window
saccule
scala vestibuli
sclera
scotoma
semicircular canals
sensory-neural hearing loss
sensory receptor

sicles
smell
spindle-shaped olfactory cells
squint
staper
stapes
stimulus
strabismus
stye
suspensory ligament
taste (gustation)
taste buds
taste (gustatory) receptors
temporal bone
thalamus
timbre
tinnitus
touch
trabecula (pl. trabeculae)
trachoma
tympanic cavity
tympanic membrane
uneven lens
vertigo (central/peripheral)
vestibular nerve
vibrate
vibration
vision
visual acuity
visual cerebral cortex
visual field
vitreous chamber
vitreous detachment
vitreous humor

I. The eye (anatomy and physiology)

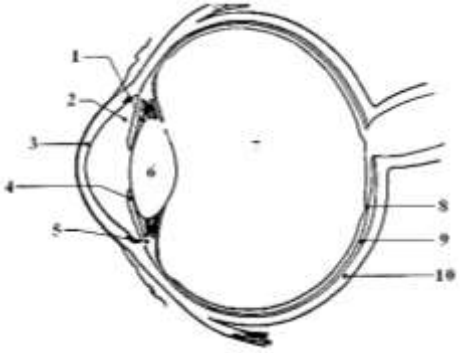
Work with the recommended literature.

1. Describe the events in stimulation of a sense organ using the following terms and complete the diagram:

Nerve endings, stimuli, brain, impulses, sense organs, afferent sensory neurons, receptors, sensitive cells, and sensory receptor area.

Stimulus ……. …….. Brain

2. Look at the picture and write the parts of the eye you know.
Ask your neighbors and the teacher about what you don't know.

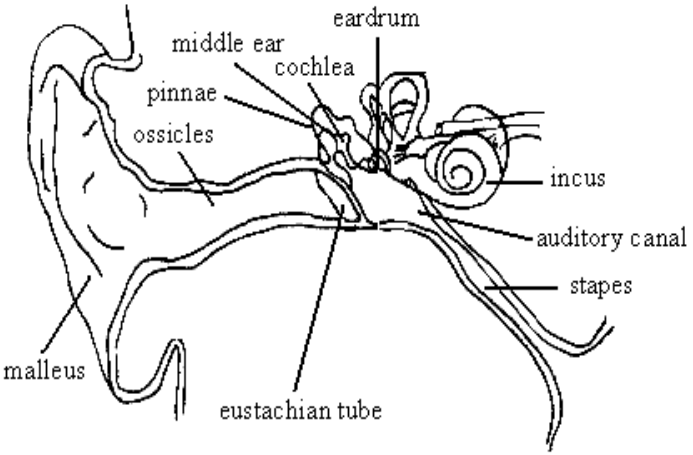


3. Match parts of the eye with their definitions:

Iris	Light-sensitive receptor cells of the retina
Sclera	Sensitive nerve cell layer of the eye
Cornea	Soft, jelly-like material filling the large inner chamber of the eye
Conjunctiva	Photosensitive receptor cells of the retina which change light into a nerve impulse
Lens	Mucous membrane over the anterior surface of eyeball
Pupil	Layer of the eye that contains blood vessels
Retina	Fibrous layer of clear tissue over the anterior portion of the eyeball
Ciliary body	Watery, transparent liquid circulating through the anterior and posterior chambers of the eye
Choroid	Opening of the eye, surrounded by the iris, through which light rays pass. Dark part of the eye
Cones	White of the eye
Rods	Colored part of the eye
Aqueous humor	Transparent structure which has the ability to bend light rays to bring them in focus on the retina
Vitreous humor	Structure on each side of the lens of the eye contains muscles to control the shape of the lens

II. The ear (anatomy and physiology)

1. Study the anatomical picture of the ear and correct the mistakes:



2. Which part of the ear corresponds to the following definitions:

1) the third ossicle of the middle ear;
2) the canal leading from the middle ear to the pharynx;
3) the membrane between the outer and inner ear;
4) the second ossicle of the middle ear, also called the anvil;
5) a snail-shaped tube in the inner ear containing sensitive hearing receptor cells;
6) the first conducting ossicle of the middle ear, also called the hammer;
7) the projecting part of the ear, also called the auricle.

3. Are the following statements true or false? Correct the false ones:

- The ear can be divided into four distinct regions.
- Sound waves enter primarily through the inner ear.
- There are three ossicles in the middle ear: malleus, incus, and stampedes.
- The outer ear is also called a labyrinth because of its mazelike structure.
- The eustachian tube separates the middle from the inner ear.
- The auditory canal leads from the ear to the pharynx.
- The cochlea is a bony snail-like structure in the middle ear.
- The mastoid process is a posterior portion of the temporal bone that extends downward behind the external auditory meatus.

4. Fill in the chart of the pathway of sound vibrations in the ear:

P___→ External ____→ E_____m→ M____ →I____→ S____→ O___ w____→ C____→ Organ of C___→ Auditory ____→ Cerebral ____

5. Make a brief report about sense organs.

III. Combining forms and suffixes

Write out the meaning of the combining forms. Use the Appendix:

acouo-, amblyo-, aqueo-, audio-, auro-, auri-, blepharo-, cerumino-, conjunctivo-, coreo-, coro-, corneo-, cyclo-, dacryo-, emmetro-, glauco-iro-, irido-, kerato-, lacrimo-, mastoido-, mio-, myringo-, oculo-, photo-, presbyo, pupillo-, retino-, salpingo-, sclero-, stapedo-, tympano-, uveo-, vitreo-, xero-, -cusis, -emphraxis, -opia, -tropia

IV. Practice

1. Give the meaning of the following combining forms and suffixes:

kerato- , sclero- ; iro-; retino- ; dacryocysto- ; aqueo-; vitreo-; -tropia; xero-; cyclo-; uveo-; acouo- ; photo-; glauco- ; amblyo- ; presbyo- ; emmetro- ; -opia; coro-; myringo-; -emphraxis; -phonia.

2. Divide the words into word-building elements:

tympanotomy, anosmia, conjunctivitis, dacryocystorhinitis, iridocycloplasty, tympanostapedectasia, iridosclerosis, miopic, stapedial, mastoidectomy, salpingoemphraxis, presbycusis, ceruminal, iridokeratitis, retinopathy, intraocular.

3. Match a term and its definition:

1) cyclocryotherapy	a) unpainful;
2) lacrimator	b) tumor of white cornea;
3) vitreoretinal	c) pertaining to inflammation of the vascular layer of the eye;
4) corectasia	
5) keratoleukoma	d) cutting of stapes and tendons;
6) tympanomastoiditis	e) one who produces tears;
7) stapediotenotomy	f) pertaining to bones of the ear;
8) otosteal	g) dilation of the pupil;
9) audioanalgesia	h) inflammation of the eardrum and mastoid process;
10) uveitic	i) treatment of the ciliary body of the eye with cold;
	j) pertaining to the retina and glassy body of the eye

4. Supply the synonyms for the following combining forms and suffixes:

myringo-; pupillo-; kerato-; dacryo-;-cusis

Now build the terms using all the synonyms and define them.
Example: myringoplasty (surgical repair of the eardrum)

5. Each word has a mistake. Find and correct it:

keratoleikoma, cyklocryotherapy, vitrioretinal, otostial, audionalgesia, stapediothenotomy, uweitic, asphonia, blepharocojunctivitis, myopia, presbyopsic, cerumenesis, irodyclectomy, dacrycystorhinostenosis, tympanocetesis.

6. Arrange the letters to build medical words:

YRSUSPBISEC, PCELGYLACOI, MCONRISAAIHO, CETTMPEOSADY, UCTCOIAS, LRAOTDIYHC, EICOOMRTA, EADIPRLGIO, MALCOGUA

7. Analyze medical terms:

ophthalmoparesis, anisometropia, otosclerotic, keratomycotic, vitreoretinal, polyphonia, hypermetropia, otorhinolaryngologist, amblyopia, cycloplegic, emmetropia, presbyacusis

8. Build medical terms:

abnormal fungus condition of the eye; surgical repair of the eardrum; pertaining to the eustachian tube and throat; unequal pupils; prolapse of the eyelid; removal of the third bone of middle earn sound; inflammation of the eyelid and conjunctiva; tightening of the tear sac and nose; abnormal condition with cerumen; surgical removal of the iris and ciliary body of the eye; inflammation of the eyelid and conjunctiva; pertaining to the vision in old age; fixation of the eardrum and stapes.

9. Write the meaning of the following abbreviations:

Acc, AD, ARMD, AMD, AS, Ast, AU, D, Em, ENT, EOM, HD, IOL, IOP, mix astig, Myop, NIHL, OD, OD, OS, OU, PERRLA, RK, SICS, VA

V. Check yourself

Build medical words:

1) pertaining to dull sensation; 2) condition of stones in the tear gland; 3) dull hearing; 4) slight paralysis of the eyelid; 5) pertaining to the movement of the ciliary body; 6) loss of hearing in old age; 7) excessive softening of the cornea; 8) bypass between the throat and Eustachian tube; 9) surgical repair of the eardrum and stapes; 10) abnormal condition of dry sclera

Analyze the words:

11) exotropia; 12) subconjunctival; 13) photophobia; 14) intraocular; 15) ophthamoscope; 16) acoustic; 17) sapingoscopy; 18) coreometer; 19)audiogram; 20) dysphonia.

UNIT 16
ENDOCRINE SYSTEM

Unit outline

I. The endocrine system.
II. Word roots and suffixes for the endocrine system.
III. Practice.
IV. Self-check.

Unit objectives:

– to distinguish between an endocrine and an exocrine gland;
– to name the major endocrine organs and list the hormones they secrete;
– to locate and identify by labeling diagrams the endocrine glands of the human body;
– to analyze and apply the combining forms associated with the endocrine system.

Word Index

These are the words used to describe the endocrine system. Read and use your dictionary to look up the meaning of the unknown words:

acceleration
acidosis
acromegaly
Addison's disease
Addisonian crisis
adenocarcinoma
adenohypophysis
adenoma
adrenal cortex
adrenal crisis
adrenal gland
adrenal medulla
adrenal neoplasm
adrenalectomy
adrenocorticotropic hormone
adrenocorticotropin
affect *v.*
aldosterone
alpha cell
androgen
angiotensin
anterior lobe
posterior lobe
antidiuretic hormone

beta cell
bloodstream
bulging
calcitonin
calcium
castration
catecholamine
chemical receptor
chromaffin cell
circadian rhythms
cortisol
cortisone
craniopharyngioma
cretinism
Cushing's disease (syndrome)
deficiency
delta cell
diabetes insipidus
diabetes mellitus
digestive enzyme
dopamine
ductless gland
dwarfism
endocrine
endocrine gland
endocrine regulation
endocrine system
epidemic goiter
epinephrine (adrenaline)
estradiol
estrogen
exocrine gland
facilitate
fasting blood sugar (FBS)
follicle-stimulating hormone
general circulation
gigantism
gland
glucagon
glucocorticoid
glucose tolerance test (GTT)
goiter
gonadotropic hormone
growth hormone
homeostasis
homeostatic mechanism
hormone
hormone-secreting cell
hydrocortisone
hyperfunction
hyperglycemia
hypofunction
hypophyseal-portal circulation
hypophysis
hyposecretion
hypothalamic-releasing hormones (neurohormones)
hypothalamus
immunoassay
infundibulum
inhibit *v.*
inhibition
insulin
insulin-dependent diabetes mellitus
interfere
iodine
islet of Langerhans
isthmus
ketoacidosis
ketosis
lobe
luteinizing hormone
maturation
mediate *v.*
melanocyte-stimulating hormone
melatonin
metabolic
metabolism
mineralocorticoid
myxedema
neurohypophysis
non-insulin-dependent diabetes mellitus
noradrenaine
norepinephrine
osteitis fibrosa cystica
ovary

oversecretion
oxytocin
pancreas
pancreatic duct
panhypopituitarism
parathormone
parathyroid
parathyroid gland
parathyroid hormone
pheochromocytoma
pineal gland
pituitary gland
pituitary growth hormone
pituitary stalk
polydipsia
potassium
produce *v.*
progesterone
prolactin
protein/steroid hormone
pulsatile secretion
regulate
release of hormone
renin
secrete *v.*
secretion
sella turcica
sex hormone
somatic
somatostatin
somatotropin
specific affinity
steroid
suprarenal gland
sympathomimetic
synthesize
testis
testosterone
tetany
thymosin
thymus gland
thyroid adenoma
thyroid cartilage
thyroid gland
thyroiditis
thyroid-stimulating hormone
thyrotoxicosis
thyroxine
toxic goiter
trachea
undersecretion

I. The endocrine system

Work with the recommended literature and do ex. 1-4.
I. Insert the appropriate term:

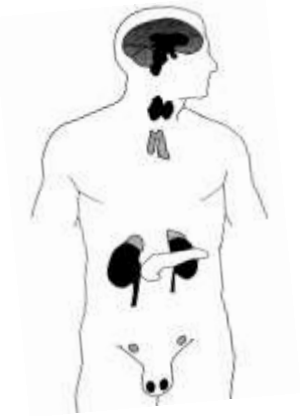
a) control; b) endocrine: c) neuroendocrine: d) hypothalamus; e) exocrine; f) pituitary gland; g) hormones; h) bloodstream

1. Glands are of two types. __ glands do not have a duct system and are called ductless glands. These glands release hormones directly into the blood or lymph.
2. ___ glands such as the sweat glands contain ducts. Ducts are tubes leading from a gland to its target organ.
3. The endocrine system helps regulate and maintain various body functions by synthesizing (making) and releasing __ (chemical messengers).
4. The endocrine system is composed of glands that release their hormones directly into the __ for chemical signaling of target cells.
5. The major areas of ___ and integration include responses to stress and injury, growth and development, absorption of nutrients, energy metabolism, water and electrolyte balance, reproduction, birth, and lactation.

6. The endocrine system and the nervous system are so closely associated that they are collectively called the ___ system.
7. Neural control centers in the brain control endocrine glands. The main neural control center is the__, also known as the "master switchboard."
8. Suspended from the hypothalamus by a thin stalk is the___. The hypothalamus sends messages to the pituitary gland; the pituitary gland, in turn, releases hormones that regulate body functions.

2. Write the names of the endocrine glands

The pituitary gland, the pineal gland, the hypothalamus, the thyroid gland, the parathyroid glands, the thymus, the adrenal (suprarenal) glands, the ovaries (in females) or testes (in males), and the pancreas.



3. Complete the table:

aldosterone; cortisol; androgens; epinephrine; estrogens; oxytocin; norepinephrine; regulating hormones (factors); estradiol; progesterone; insulin; parathyroid hormone; glucagon; melatonin; growth hormone; thyroid-stimulating hormone; testosterone; thymosin; adrenocorticotropic hormone; antidiuretic hormone; follicle-stimulating hormone; melanocyte-stimulating hormone; luteinizing hormone; calcitonin; thyroxine; triiodothyronine; prolactin.

Endocrine Gland	*Hormone*	*Action*
Adrenal cortex (mineral corticoids)		Controls concentrations of minerals, salts (electrolytes; includes sodium retention and potassium excretion)
(glucocorticoids)		controls glucose metabolism; includes production of carbohydrates from fats and proteins, and regulation of protein, sugar, and fat levels in the body
(sex hormones)		stimulates secondary sex characteristics

Endocrine Gland	*Hormone*	*Action*
Adrenal medulla		increases heart activity, dilates bronchioles, increases blood sugar level
		similar to epinephrine; raises blood pressure and constricts blood vessels
Hypothalamus		regulates the secretion of anterior pituitary hormones
Ovaries		development and maintenance of secondary sex characteristics
		preparation and maintenance of the uterus in pregnancy
Testes		development and maintenance of secondary sex characteristics
Pancreas		regulates sugar intake by cells and the formation of glycogen and fat
		breakdown of glycogen and fat
Parathyroids		regulates calcium in the blood
Thyroid		stimulates the passage of calcium into bones from the blood
		stimulates growth and development
		stimulates cellular metabolism
Pineal		affects the secretion of sex-organ-stimulating hormones (gonadotropins)
Pituitary (anterior)		stimulates bone and muscle growth
		stimulates thyroid-gland growth and secretion of thyroxine
		stimulates growth and increases in cortisol secretion
gonadotropic hormones		stimulates egg growth
		induces progesterone secretion
		promotes breast tissue growth and milk secretion
		influences skin pigment production
Pituitary (posterior)		stimulates water retention, and increases blood pressure by constricting blood vessels
		stimulates the uterus to contract during childbirth; stimulates milk production
Thymus		stimulates white blood cell (T lymphocyte) production

4. Make a brief report about the endocrine system.

II. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

adrenalo-, dipso-, estro-, gonado-, natro-, homeo-, kali-, galacto-, parathyroido-, pineo-, pinealo-, pitui-, somo-, somato, stero-, thymo-, thyroido-, toxico-, -physis

III. Practice

1. Write two combining forms for the following:

1) Thyroid gland____ or ___; 2) body ___or ___; 3) pineal gland ____or __; 4) milk ___ or ____; 5) sugar ___ or ___; 6) adrenal gland ___ or ____; 7) calcium __or _____.

2. Give the endocrine organs which produce *the following hormones:*

follicle-stimulating hormone; aldosterone; insulin; thyroxin; cortisol; gonadotropic hormones; epinephrine; oxytocin; prolactin; somatotropin; glucagons; melatonin; estrogen; progesterone; testosterone.

3. Give the meaning of the following abbreviations:

ACTH; LH; FSH; TSH; GH; ADH; DI; DKA; DM; HRT; IDDM; MSH; NIDDM; PGH; PRL; PTH; T3; T4; TFT; TSH

4. Give the meaning of the following medical terms:

hpernatremia, hypokalemia, glycogenolysis, hyperinsulinism, acromegaly, lactogenic, steroidogenic, hypophyseal

5. Build medical terms:

abnormal condition (poisoning) of the thyroid gland; removal of the thymus; deficiency or underdevelopment of the sex glands; much thirst; removal of the pituitary gland; sugar in the urine; excessive calcium in the blood; inflammation of the thyroid gland; pertaining to producing milk; enlargement of the adrenal gland.

6. Determine the meaning of the following terms by identifying their respective word elements as shown in the example:

Andropathy:
andro/pathy. Andro (root for male) + pathy (suffix for disease). – A disease affecting male

pinealoma; estrogenic; pancreatitic; somatic; adrenocortical; lactogen; parathyroidectomy.

7. Match the condition with its appropriate description:

homeostatic, pituicytoma, somatotopagnosis, lactoglobulin, glycosialorrhea, monosomia, euglycemia, neuroendocrine, endocrinotherapy, homeoplasia

- Benign tumor arising from cellular elements of the posterior part of hypophysis;
- Inability to identify parts of the own or someone else's body;
- Pertaining to the condition of equilibrium in the body in relationship to different functions and chemical composition of fluids and tissues*;*
- Normal concentration of glucose in the blood;
- Anatomic and functional correlation between the nervous and endocrine system;
- Secretion of saliva containing sugar;
- Protein found in milk comprising from 50 to 60% albumin of cow's milk serum;
- Twins with conjoined body and two heads;
- The formation of new tissue of the same character as that already existing in the part;
- Treatment of disease by the administration of extracts of endocrine glands.

8. *Arrange the letters in the correct order. Use the definitions, if necessary:*

ILTEOMMASB, UYTPRTIIA, EUSDSLCT, PRRAITHDYOA, EETCTLOLEYR, HOTDYIR, YASHPULTAHMO, XYOONTCI, CLAINTCNOI, ITNERTONIDRHIOYO

1. A small organ at the base of the brain that controls the growth and activity of the body by producing hormones.
2. A bodily tube or vessel especially when carrying the secretion of a gland.
3. All the chemical processes in your body, especially those that cause food to be used for energy and growth.
4. A nonmetallic electric conductor in which current is carried by the movement of ions.
5. A basal part of the diencephalon that lies beneath the thalamus on each side, forms the floor of the third ventricle and includes vital autonomic regulatory centers.
6. A gland in the front of the neck that is involved in controlling the way the body develops and works.
7. Two pairs of small, oval-shaped glands, located next to the two thyroid gland lobes in the neck.
8. A hormone that helps with labor and helps women and female mammals to produce milk.
9. A hormone that C-cells in your thyroid gland make and release to help regulate calcium levels in your blood .
10. A thyroid hormone that plays vital roles in the body's metabolic rate, heart and digestive functions, muscle control, brain development.

9. Enter the specific term indicated by the accompanying statements in the spaces provided. Then find the terms in the diagram. Terms can be read from left to right, backward, up or down.

1. TSH means ___ stimulating hormone. 2. The specific hormone produced by the testes ___. 3. Combining form for male __. 4. Enlargement of arms and legs ___. 5. ___ glands secrete hormones directly into the bloodstream. 6. Hernia of thyroid gland___. 7. One who produces sugar___. 8. __ is the mineral substance for proper functioning of bones. 9. Combining form for sex glands ___. 10. __ glands secrete chemicals through channels or ducts.

E	*A*	*C*	*R*	*O*	*M*	*E*	*G*	*A*	*L*	*Y*	*Z*
N	*T*	*G*	*L*	*Y*	*C*	*O*	*G*	*E*	*N*	*T*	*A*
D	*H*	*X*	*M*	*U*	*I*	*C*	*L*	*A*	*C*	*H*	*N*
O	*Y*	*Q*	*P*	*S*	*Z*	*T*	*R*	*E*	*H*	*Y*	*D*
C	*R*	*E*	*X*	*O*	*C*	*R*	*I*	*N*	*E*	*R*	*R*
R	*O*	*M*	*B*	*V*	*C*	*X*	*D*	*R*	*K*	*O*	*O*
I	*C*	*Q*	*W*	*G*	*O*	*N*	*A*	*D*	*O*	*I*	*L*
N	*E*	*A*	*S*	*D*	*G*	*J*	*L*	*I*	*U*	*D*	*M*
E	*L*	*A*	*S*	*C*	*V*	*B*	*N*	*O*	*O*	*F*	*N*
T	*E*	*S*	*T*	*O*	*S*	*T*	*E*	*R*	*O*	*N*	*E*

Check yourself

Analyze the words:

1) Gluconeogenesis; 2) decalcification; 3) adrenocortical; 4) hypogonadism; 5) thyroaplasia; 6) homeotherapeutic; 7) hypoparathyroidism; 8) hyponatremia; 9) pineoblastoma; 10) adrenocarcinoma.

Build medical words:

11) Removal of the adrenal gland(s); 12) excessive sugar in blood; 13) tumor of the thymus gland; 14) pertaining to the cortex; 15) one who produces male; 16) pertaining to above kidneys (×2); 17) no strength in the body; 18) pertaining to the bodily sensation (conscious awareness of the body); 19) pertaining to the study of the causes; 20) excision of sex glands (ovary or testis).

Unit 17
Cancer

Unit outline

I. Cancer (etiology, cancerous tumors, heredity, treatment).
II. Combining forms and suffixes.
III. Practice.
IV. Self-check.

Unit objectives:

- to get acquainted with cancer medicine (etiology, heredity, cancerous tumors, treatment);
- to learn the terms determining cancer medicine;
- to study combining forms and suffixes;
- to build medical terms related to cancer medicine.

Word Index

These are the words used to describe tumors. Read and use your dictionary to look up the meaning of the unknown words:

abnormal cell
abnormal growth
abnormal hormone production
adjacent tissues
affect *v.*
aflatoxin
agent
aggressive
alcohol consumption
alkylating agents
anticancer drug
antimetabolite
antineoplastic drug
apoptosis
aromatic amines
asbestos
asymptomatic
atomic particle (linear) accelerator
benign
benign growth
benign neoplasm
benign tumour
benzene
benzo(a)pyrene
beryllium
biologic response
biopsy
blood malignancy
bone cancer
bone marrow
breast cancer
cachexia
cadmium
cancer
cancer patient
cancerous
cancerous tissues (malignancies)
cancerous tumour
carcinogen
carcinoma
causal agent
cell biology
checkup
chemical carcinogen
chemotherapeutic drug
chemotherapy
coal tar
combination chemotherapy
combination of surgery, radiation therapy, and chemotherapy
complete elimination
control the rates
cryotherapy
crystalline silica
cure *v.*
cure rate
cystic
death rate
disseminated
dissemination
distant site
early asymptomatic cancer
epithelial cell
errors in replication of DNA
ethylene oxide
exposure to carcinogens
external beam
fine-needle aspiration biopsy
give rise to cancer
gross appearance
growth
hazardous substance
head and neck cancer
healthy cells
hemangiosarcoma
hereditary factor
heterocyclic amines
hormone
hyperplasia
identification

immune response to tumors
immune surveillance
immune system
immunization
improve the quality of life
inadequate care
incidence rate
increased risk
infiltrate
initial
invade *v.*
invasion and dissemination
ionizing radiation
isopropyl alcohol production
Kaposi sarcoma
large cell cancer
late diagnosis
leiomyosarcoma
linear accelerator
location of the tumour
lumen
major modalities of cancer therapy
malignancy
malignant
mesenchymal cell
metastasis
metastasize *v.*
metastasized
microinvasion
mineral oils
mitosis
mortality rate
multimodality therapy
mutagen
myosarcoma
neoplasm
noncancerous
noninvasive stage
normal cell
occupational exposure
oncogenesis
palliative therapy
papilloma
penetrate *v.*
personalized cancer medicine
polyp
precancerous stage
predispose *v.*
premalignant growth
preventable
prevention strategy
preventive measures
primary (initial) site
primary tumor
proliferation of cells
radiation therapy
radioactive material
radioactive substance
radiotherapy
risk factor
screening for carcinoma
site of origin
solid tumors
soots
spontaneously
spread (metastasize)
spread to lymph nodes
stage of the disease
suppress *v.*
surgery
target organ
targeted agents
targeted therapy
treatment choices
tumor
tumor cell
tumour antigen
tumour necrosis factor-alpha (TNF alpha)
tumour progression
tumour type
tumour-associated antigens
tumour-specific antigens
uncontrolled growth
unregulated growth
vascular endothelial growth factor (VEGF)

I. Cancer (etiology, cancerous tumors, heredity, treatment)

Work with the recommended literature and do ex. 1–4.

1. Match the terms with their meanings:

anaplasia, hyperplasia, neoplasm, benign, malignant, carcinoma, sarcoma, polyp, metastasis, responsive tumor, nonresponsive tumor

- A mass of new, abnormal tissue; a tumor.
- Tending to become progressively worse; used to describe the growth of cancerous tumors.
- Cancerous tumor derived from connective tissues in the body.
- A tumor that is not severely damaged by drug therapy.
- A growth extending outward from a mucous membrane, usually benign, but may be malignant.
- A tumor that will be killed by drug therapy.
- Change in normal cells so that they revert to a more primitive, embryonic cell type.
- Not tending to become progressively worse or to recur; used to describe the growth of noncancerous tumors.
- Increase in mass of a tissue or organ caused by new growth of cells.
- Spreading of cancerous tumor cells from the primary tumor site to distant regions of the body.
- Cancerous tumor derived from epithelial tissues in the body.

2. Do the multiple choice test:

1. How long has cancer been around?
   a) Only since the twentieth century
   b) As long as Egyptian times
   c) Since prehistoric times
2. How many different types of cancer are there?
   a) Around 20
   b) Over 200
   c) At least 2000
3. Cancer develops due to damage to your cells:
   a) Cytoplasm
   b) Cell membrane
   c) DNA
4. Which of these is <u>not</u> known to cause cancer?
   a) Vegetables
   b) UV light
   c) Smoking

5. In normal cells, the cell division is:
   a) Highly regulated
   b) Unnecessary
   c) Out of control
6. Which of these is NOT a property of tumors?
   a) They can spread to other parts of the body via the bloodstream and lymphatic system.
   b) They can become large and put pressure on surrounding tissues and organs.
   c) Their cells multiply in a controlled manner.
7. Deaths from cancer make up almost 1/5 of all deaths in:
   a) Canada
   b) USA
   c) Great Britain
8. _____ tumors display slow growth are encapsulated.
   a) Malignant
   b) Pernicious
   c) Benign
9. Carcinoma, sarcoma and _____ are the major groups of malignant tumors.
   a) mixed-tissue tumor
   b) adenoma
   c) teratoma
10. Some chemicals and drugs, known to be inducers of cancer, are called:
   a) mutagens
   b) cancerous agents
   c) carcinogens

3. Agree or disagree with the following statements commenting on every sentence:

Today, more than half of all people diagnosed with cancer are cured.
There are no warning signs with cancer; illness tends to come on suddenly.
Most cancers are hereditary.
Standard treatments for cancer include surgery, radiation, and chemotherapy.
People undergoing cancer treatment have fewer side effects when they eat a well-balanced diet.
Certain types of cancer are genetic.
Ethnicity is a factor in the development of skin cancer.
HPV, a virus that can cause cancer, is contagious.
Some cancers are contagious.
Men cannot develop breast cancer.
Cancer is a group of over 500 diseases.
During chemotherapy, everyone loses their hair.
A positive attitude can help cure cancer.

4. Make a brief report about cancer.

II. Combining forms and suffixes

Write out the meaning of the combining forms. Use the Appendix:

chemo-, folliculo-, germo-, iono-, mito-, muta-, papillo-, pharmaco-, pleo-, polypo-, proteo-, ribo-, sarco-, scirrho-, somo-, terato-, toxo-, toxico-, zymo-, -cidal, -plasm, -some

III. Practice

1. *Divide medical terms into word-building elements:*

polypous, chemical, retinopapilloma, toxic, cryoanesthesia, pharmacodiagnosis, mitogenesis.

2. *Write the combining forms for the following words:*

cold; tumor; heat ; thread; dry; soft ; polyp; flesh; pertaining to killing ; to cast; body; sugar ; nucleus; color; thread; catalyst ; smooth muscle; sac of fluid; monster ; formation; cancer; tumor; up; mutation; upon; resembling; change, near, beyond; striated muscle; first; fat; bone; hard; nipple-like; small sac; more; gland .

3. Complete the terms with a word-building element:

polyp__ – abnormal condition of polyps, onco__– originating of tumors, ___logy – study of tumors, __emia – viruses in blood, bacteri__ – pertaining to killing bacteria, __therapy – treatment with drugs, nucleo__ – pertaining to the fear of nuclei, __osis - abnormal condition with threads, __uria – colored urine, nucleo__ – nucleus body.

4. Match the opposites:

-therapy-	poikilo-
-rrhaphy	malacia
intra-	-stasis
hypo-	exo-
-lysis	pathy-
dys-	supra-
de-	-rrhexis
-sclerosis	-plasia
iso-	eu-
-rrhea	hyper-

5. Using the combining forms of this unit, build medical terms with the suffixes and prefixes from Exercise 4.

Example: *chemotherapy (treatment with drugs) – somatopathy (disease of the body)*

6. *Each word has a mistake. Find and correct it:*

theratogenic, anoplastic, sarcaplasm, metochromatic, adenomotoid, ostioradionecrosis, lypuria, protemetabolic, chromoturia, nuclleoloid, chromatophebia, ionophorecis, chemonucleolisis, papilloretinitis, oncocis, pharmocodiagnosis polyphoid, xeroxis, onkotomy, radyodiagnosis.

7. Arrange the letters to build medical words:

MRENIOEXA, ULOPOSYP, HIOSOPORESNI, PXICICOTAHOT, YCIHORANESATES, GSISOETEMIN, OLYGOBOYRIC, MCONOSYTO, NECINIOGO, SERACONUC

8. Analyze medical terms:

lymphoblastoma; sarcomatoid; teratogenesis; anticarcinogenic; leiomyosarcoma; zymosthenic; ribonucleic; mutagenous; chemolysis

9. *Build medical terms:*

pertaining to unequal colors; movement of the nucleus; a vision of colors; exchange of proteins; pertaining to the destruction of catalysts; resembling tumor; rupture of the nucleus; attraction for sugar; abnormal condition of fungi; pertaining to hard; beyond stopping; removal of ions; resembling poison; abnormal condition of seed cells; pertaining to killing infections.

10. Write your abbreviations for the following, and then check your answers:

aspiration biopsy cytology, breast self-examination, basal cell carcinoma, biopsy, cancer, prostate-specific antigen

IV. Check yourself

Build medical words:

1) body of fat; 2) destruction of a nucleus; 3) production of catalysts; 4) pertaining to excessive color; 5) immature tumor of the retina brain; 6) the process of "throwing down"; 7) pertaining to the attraction for sugar; 8) fear of drugs; 9) the process of "casting up"; 10) incision into the tumor of the thymus gland

Analyze the words:

11) toxicopathic; 12) mitogenesis; 13) cryanesthesia; 14) oncotomy; 15) germocidal; 16) toxicography; 17) canceroid; 18) radiodiagnosis; 19) cancerolytic; 20) cryopathy.

UNIT 18
MEDICAL IMAGING

Unit outline
I. Medical imaging.
II. Combining forms, prefixes, and suffixes.
III. Practice.
IV. Self-check.

Unit objectives:
- to get acquainted with radiography, radiology, X-ray examination;
- to learn the terms connected with medical imaging;
- to study combining forms and suffixes;
- to build medical terms related to medical imaging.

Word Index

These are the words used in the literature about medical imaging. Read and use your dictionary to look up the meaning of the unknown words:

absorb
accurate diagnosis
angiocardiography
angiography
bronchoscopy
chest x-ray
cholangiography
cholecystography
colposcopy
computed tomography
computer-based technologies
computerized axial tomography
contrast agent
contrast medium
contrast study
contrast-medium fluids
conventional X-ray techniques
coronary angiography
cross section
cross-sectional image
CT scan
cystoscope
dense
density
detect *v.*
detector
device
diagnostic imaging
diagnostic imaging technique
direct cholangiography (percutaneous and retrograde techniques)
echocardiography
echoencephalography
electrocardiogram
electrocardiography
electroencephalography
electromagnetic radiation
emission of electromagnetic waves
emit *v.*
endoscopy
esophagogastroduodenoscopy
exposed film
exposure
flexible optical instrument
flexible tube
functional magnetic resonance imaging
hazard-free
high-frequency sound waves
hollow cylindrical magnet
image

imaging technique
integrate the X-ray data
intravenous cholangiography
intravenous urography
iodate contrast medium
iodine-131
isotope
laparoscopy
lighter areas
liver ultrasonography
magnetic resonance imaging
magnetoencephalography
mediastinoscopy
medical diagnosis
movable radiation detection device
myelography
nasopharyngolaryngoscopy
neuroimaging technique
noninvasive procedure
nuclear magnetic resonance imaging
nuclear medicine
opaque
phonocardiography
pneumoencephalography
positron emission tomography
positron emission tomography scan
powerful magnetic field
proctosigmoidoscope
radiation
radioactive isotopes
radioactive tracer-labeled compound
radiogram
radiographic
radiography
radioisotope liver scan
radiological examination
radiology
radionuclide ventriculography
radiopaque
record
renal ultrasonography
resonance frequency
rotate
scan
single-photon emission computer tomography
slice
sound waves
technetium-99m
thin slices
three-dimensional
tissue biopsy
tomographic techniques
tomography
transparent
ultrasonography
ultrasound
urography
ventriculography
very-high-frequency radio waves
video camera
view *v.*
visual analysis
visual examination
visualization
visualize tissues
whole body scan
X-ray analysis
X-ray examination
X-ray image
X-ray imaging
X-ray motion-picture films
X-ray photograph
X-ray photography
X-ray source
X-ray source and detector
X-ray study
X-rays

I. Medical imaging

Work with the recommended literature and do ex. 1-5.

1. Match the terms with their meanings:

Electron	A positively charged particle in the nucleus of an atom
Densitometry	Unit of energy, as an x-ray, with no electrical charge
Ion	Smallest particle of an element having the same properties of an element
Nuclear medicine	Particle in the nucleus of atom with no charge
Photon	Negatively charged particles normally circulating around the nucleus of an tom
Radiation	Charged particle, can be positive or negative
Laser	Device emitting intense, focused light energy that can destroy tissues as an alternative to conventional surgical removal.
Proton	The sending forth of light, short radio waves, ultraviolet or X-rays, or any other rays for treatment or diagnosis or for other purposes
Neutron	The clinical discipline concerned with the diagnostic and therapeutic uses of radionuclides
Atom	A method for imaging density

2. Give the meaning of the following acronyms:

fMRI, NMR, SPECT, MRI, US, PET, CT, CAT, ECG, EEG, MEG, BaE, CXR, DI, DSA, MRA, RAI, RAIU, RP

3. Choose the correct word or phrase to complete each sentence:

1. In radiography, barium is used as a contrast (image/medium).
2. Tissue that absorbs radiation and appears dark on X-ray is (radiolucent/radiopaque).
3. An (enema/injection) is a liquid introduced into the bowel by way of the anus.
4. X-rays used to measure the progress of a disease are called (repeated/serial) X-rays.
5. If a patient moves during an X-ray, the image may be (blurred/abnormal).
6. It is easier to see abnormalities when the lungs are (deflated/inflated).

4. Complete the words beginning with "radio-":

1. Using radiation to diagnose and treat disease is radio……
2. Using radiation to make images is radio……
3. Using radiation to provide treatment is radio……
4. If something is not penetrable by radiation, it is radio……
5. If something is penetrable by radiation, it is radio……
6. A technician who administers X-rays is a radio……

5. *Make a brief report about medical imaging.*

II. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

cineo-, echo-, fluoro-, luco-, opaco-, opaqo-, scinti-, sono-, stereo-, teleo-tomo-, -opaque

III. Practice

1. Divide medical terms into word-building elements:

Radiologist, stereoscopy, radiopaque, sonography, anisoionic, telekinetic, echoenchephalograph, cineogram

2. Write the meanings of the combining forms:

-graphy; -opaque ; stereo-; tomo- ; scinti- ; radio- ; tele- ; iso- ; iono- ; graph- ; -gram; thermo- ; xero- ; sono-; echo-; luco-; intra-; inter-; opaco- ; fluoro-; cineo- .

3. Give the meaning of the following x-ray diagnostic studies:

ventriculography; pyelography; sialogram; angiogram; cholecystography; lymphography; myelogram; bronchogram; hysterosalpingography; venogram; renography; hepatography

4. Find and correct the mistakes in term definitions:

Stereoencephalometry – measurement of the brain; scintigraphic – recording by means of sparks; telemetry – measurement of TV sets; thermoanesthesia – sensation to heat; radiopathology – X-ray examination; radiodermatitis – X-ray irradiation of skin; isocellular – pertaining to cells of unequal size; echocardiogram – recording of heart electricity; fluorometer – measurement of light.

5.Analyze medical terms:

radiographic, angiocardiography, sialoscintigraphy, electrocardiogram, radio-thyrograph, radiotoxemic, urography, tomographic, cineographer, anisothermia

6. Build medical terms and analyze them:

Example: *intra+ vein + graphy = intraphlebography (process of recording inside the vein)*

- Heat + formation+ ic =
- Radio + treatment =
- Thermo + measurement =
- Rays + neuro + inflammation =
- Thermo + instrument to measure =
- distance + complete + gnosis =
- xero + lips + abnormal condition =
- 3-dimensional + electro + heart +graphy =
- Luminosity + graph =
- Sparks + scopo + pertaining to =
- Unequal + color + ic =

7. *Unscramble the following to get some words mentioned in the unit. Write down the words you obtained:*

1. Containing a particular type of energy, especially electrical energy – HDAGERC.

2. Radiography of a part of the urinary tract (as a kidney or ureter) after injection of a radiopaque substance – URGOHYARP.

3. Being opaque to various forms of radiation (such as X-rays) – RDAUEPIQAO.

4. A nuclear diagnostic imaging technique that assesses the major salivary gland function by using the radioactive tracer Technetium-99m pertechnetate ($99mTcO_4^-$) to measure glandular uptake and excretion – YILIPASNTICOAHRGS.

5. An analysis used in dentistry, and especially in orthodontics, to gauge the size and spatial relationships of the teeth, jaws, and cranium – EHPRAETNLYOMCESEOETR.

6. Radiographic visualization of the renal pelvis of a kidney after injection of a radiopaque substance through the ureter or into a vein – YEOLHARYPPG.

7. A photographic depiction of the course of renal excretion of a radiolabeled substance – RRENOMAG.

8. Loss of the temperature sense or of the ability to distinguish between heat and cold; insensibility to heat or to temperature changes – RAHNTEIOSEEHSMTA.

9. Radiographic visualization of the heart and its blood vessels after injection of a radiopaque substance – YRIOPAADINAOGHRGC.

10. An instrument for measuring fluorescence and related phenomena (such as intensity of radiation) – LOEFERMOTUR.

IV. Check yourself

Build medical words:

1) recording of sparks; 2) pertaining to visual examination of heat; 3) abnormal condition of excessive luminosity; 4) study of the urine with x-rays; 5) process of recording of the ventricles of the brain; 6) pertaining to ions; 7) sound recording with movement; 8) abnormal condition of unequal dryness; 9) inflammation of the region between the kidneys; 10) pertaining to inside the artery.

Analyze the words:

11) radiologist; 12) intravenous; 13) radiopaque; 14) xeroradiography; 15) radiotherapy 16) echogram; 17) thermograph; 18) fluoroscopy; 19) lymphangiogram; 20) lucotherapy/

UNIT 19
PHARMACOLOGY

Unit outline

I. Pharmacology (drug names, administration of drugs, drug classes)
II. Combining forms and suffixes.
III. Practice.
IV. Self-check.

Unit objectives:

- to get acquainted with pharmacology (drug names, administration of drugs, drug classes);
- recognize the terms that describe different types of drug actions and drug toxicities;
- to study combining forms and suffixes;
- to build medical terms related to pharmacology.

Word Index

These are the words used in medical literature to describe drugs. Read and use your dictionary to look up the meaning of the unknown words:

absorption
action
active substance
administer *v.*
adverse reaction
aerosol
agent
allergic reaction
allergy skin test
atomic and molecular structure
basic pharmacological research
beneficial action
binding
biology
biotransformation
capsule
chemical
chemical formula
chemical make-up
chemical name
chemical structure
chemical substance
chemical synthesis
chemistry
chemistry of drug
chemotherapy
clinical effectiveness
combined effect
composition of drug
compound
contraindication
cream
crude plant source
deep injection
detection
dispense *v.*
distribution of drug
DNA
dosage
drug action
drug company
drug design
drug's effect
drugstore
elimination of drug
enzyme
form
generic drug
generic name
harmful action
herbal plants
hormonal drug
hypodermic
infusion
inhalation
inhibitor
interaction of drugs
laboratory
legal
lotion
manufacture *v.*
mechanisms of drug action
medical compound
medical treatment

medical use
medication
metabolism
molecular and subcellular level
molecular pharmacology
official name
ointment
oral
organic chemical
organic chemistry
over-the-counter drug
pareneteral
pharmaceutical action
pharmaceutical chemistry
pharmaceutical system
pharmaceutics
pharmacist
pharmacodynamics
pharmacokinetics
pharmacologic response
pharmacologically active molecules
pharmacology
pharmacy
physiologic reaction
poison
poisonous effect of drug
potency and purity of drug product
potential toxicity
potentially dangerous effect
potentiation
preparation
prepare *v.*
prescribed drug
preventive procedure or regimen
property of drug
relieve *v.*
remedy
risk
RNA
route of drug administration
side-effect
standardized and purified drug
store *v.*
suppository
synergism
synthesis and analysis of drug
tablet
therapeutic effect
therapeutic use of drug
time of action
toxic substance
toxicity
toxicology
trade name (brand name)
transport and absorption of drug
undesirable effect
uptake
way of administering drug

I. Pharmacology (drug names, administration of drugs, drug classes)

Work with the recommended literature and do ex. 1–5.

1. *Answer the following questions:*

– What field of medicine studies drugs?
– What subdivisions does it contain?
– When and where was pharmacology invented?
– What is a drug? How is it obtained?
– What are three different names of a drug?
– What are the main methods of drug administration? Briefly describe each.
– How do drugs act and interact in the body?
– What is drug toxicity?

– What side effects can result from the use of the drug?
– What is idiosyncrasy?
– Who suggested the term “antibiotic”?
– What is a vaccine and how does it work?

2. Match the terms, denoting the subdivisions of pharmacology, and their definitions:
***E.g**. Pharmacokinetics is the study of the metabolism and action of drugs with particular attention being given to their transport, absorption, time of action, distribution, and elimination.*

Chemotherapy, Pharmacokinetics, Pharmaceutical chemistry, Molecular pharmacology, Toxicology,Pharmacodynamics

– the study of drugs and their interactions at a molecular or subcellular level, which includes enzymes, DNA, and RNA.
– the chemistry of drugs, their composition, actions, synthesis, and analysis.
– study of the metabolism and action of drugs with particular attention being given to their transport, absorption, time of action, distribution, and elimination.
– the study of toxic substances, including their detection, chemical makeup, and pharmaceutical action.
– the study of drugs and their effects on living organisms.
– the treatment of diseases, such as infectious diseases and cancers, through the application of chemicals that have specific effects.

3. Match the drug with its application:

1. antiflatulent	a) endocrine system
2. tranquilizer	b) immune
3. diuretic	c) dermatological
4. androgen	d) respiratory
5. progestogen	e) gastrointestinal
6. vaccine	f) urinary
7. antihistamine	g) gynecological
8. miotic	h) CNS
9. cholinergic	i) ophthalmologic
10. vitamin D analogue	j) cardiovascular

4. Complete each sentence with a type of medicine:

Analgesic, sedative, anti-inflammatory, inoculation, antibiotic, antihistamine, stimulant, antidepressant, laxative, supplement

1) __kills bacteria and other germs, 2) __ protects you against infectious diseases, 3) __ relieves pain, 4) __reduces swelling, 5) __ encourages bowel movement, 6) __ provides a substance that the body lacks, 7) __ treats allergies, 8) __ increases activity in the body, 9) __ reduces feelings of extreme sadness, 10) __ makes you relaxed and sleepy.

5. Make a brief report about pharmacology.

II. Combining forms and suffixes

Write out the meaning of the combining forms. Use the Appendix:
aero-, craso-, ergo-, hypno-, iatro-, idio-, narco-, pyro-, theco-, vito-, vita-, -cidal, -lytic, -mimetic, -phoria, -phylaxis, -static

III. Practice

1. Write the combining forms for the following words:

life; protection; poison; numbness; skin; within; drug; vein; sensitivity to pain; sheath; air; work; individual, distinct, own; sleep; physician; disease; intestine; against; pertaining to killing; fire; feeling; against; destruction; fever; tissue; mould; vessel; to copy.

2. a) Divide medical terms into word-building elements. Explain how the drugs are administered:
Sublingual, intradermal, hypodermic, parenteral, intravenous, intramuscular, intrathecal, rectal, oral, topical, inhalation.

b) Match the routes of administration of drugs (a) with medications and procedures (b)
lotions, creams, tablets, ointments, capsules, allergy skin tests, lumbar puncture, deep injections usually into buttocks, suppositories, aerosols, infusions.

3. Match the drug and the condition or factor it is used for (more then one is possible):

Antipruritic	Spasms
Antiseptic	Microorganisms
Antipyretic	Bile excretion
Analgesic	Helminths
Antiemetic	Spasm
Antibiotic	Salivation
Anticephalalgic	Fungi
Anticholagogue	Increased blood pressure
Anticoagulant	Headache
Anticonvulsant	Poison
Antidynic	Sweating
Antidote	Vomiting
Antifebrile	Stones
Antimycotic	Infection
Antihypertensive	Fever
Antilithic	Itching
Antimicrobial	Convulsion
Antifungal	Dizziness
Antiperspirant	Pain
Antisialic	Blood clotting
Antispasmodic	
Antivermicular	

4. Arrange the letters to build medical words:

OTICITINAB, ICATCORN, PISYNOSH, SECALIGAN, CINGLECOHIR, APUORHIE, LIXASYNAHAP, NALCEODTIRY, ESIMCATOMIHPYT, SAHASETENI.

5. Find and correct the mistakes in term definitions:

Pyroglobulin – fire fat; pyrogen – condition of fever; pyretic – destruction with fire; hypnotist – specialist studying feelings; anesthetist – no feelings; esthesioneurosis – inflammation of nerves; histometaplastic – pertaining to repair of sleep; histotoxic – poison in tissues; vasoparesis – destruction of vessels; bronchomycosis – fungi in vocal box; adrenolytic – destruction of kidneys.

6. Analyze medical terms:

anaphylactic, pyrochemical, chromatography, psychopharmacology, biocidal, dyscrasia, hypnodontic, ergometric, thecomatosis, mycothrophic idiochromosome

7. Build medical terms:

treatment with numbness -; abnormal condition with fever -; pertaining to the condition of sleep -; the process of measuring feelings -; an instrument to measure sensitivity to pain -; pertaining to the nourishment of tissues -; study of tissue diseases -; destruction of tissues -; pertaining to a condition caused by fungi -; abnormal condition due to fungi in bronchi -.

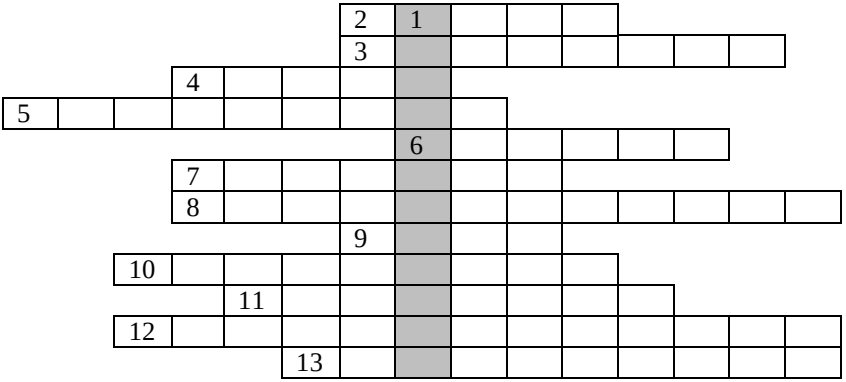
8. Write your abbreviations for the following. Check your answers using Appendix:

twice a day, nonsteroidal antiinflammatory drugs, by mouth, as required, every 2 hours, every morning, every day, every hour, four times a day, every other day, every night, immediately, subcutaneous (injection), three times a day, ointment, before meals, nothing by mouth, after meals, prescription, intravenous, intramuscular

9. Do the crossword:

DOWN:
1 – sweating
ACROSS:
2 – a sudden involuntary contraction of a muscle
3 – parasitic worms
4 – increased body temperature
5 – a sensation of spinning or off-balance
6 – any substance that causes a bodily disturbance, injury, or death by chemical rather than mechanical means
7 – annoying skin sensation relieved by scratching
8 – increased blood pressure
9 – an elementary sensation of physical suffering

10 – invasion of the body by harmful microorganisms
11 – dislodging the food in the stomach through the mouth
12 – microscopic organism
13 – temporary loss of consciousness with severe muscle contraction



IV. Check yourself

Build medical words:
1) condition of work together; 2) poisons in blood; 3) pertaining to against infection; 4) pertaining to inside muscles; 5) pertaining to against fever; 6) no sensation of pain; 7) good feeling; 8) pertaining to killing viruses; 9) pertaining to work of adrenal gland; 10) pertaining to no sensation.

Analyze the words:
11) narcotic; 12) hypnotic; 13) antibiotic; 14) bacteriostatic; 15) sympatholytic; 16) sympathomimetic; 17) prophylaxis; 18) dyscrasia; 19) hypodermic; 20) pharmacology

UNIT 20
MICROBIOLOGY

Unit outline
I. An introduction to the microbial world.
II. Prefixes, suffixes, word roots, and combining forms used in association with microorganisms and diseases.
III. Practice.
IV. Self-check .

Unit objectives:
– to learn the medical terms related to the general characteristics of microorganisms;
– to understand the basis for the classification of microorganisms;
– to learn combining forms related to the specialty of microbiology.

Word Index

These are the words used to describe microorganisms. Read and use your dictionary to look up the meaning of the unknown words:

ability
acid-fast
acid-fast procedure
acid-fast stain
acquired immune deficiency syndrome
affect
airborne
alcoholic beverages
alga (pl. algae)
allergen
allergy
animal
animal-like
antibiotics
antigenic substance
archaeon (pl. archaea)
asthma
bacillus (pl. bacilli)
bacteremia
bactericide
bacteriologist
bacteriology
bacterium (pl. bacteria)
bacteriuria
biochemical activities
branching filaments
bud
budding
capsule
causal organism
causative agent
cause *v.*
cell division
cell wall
cellular membrane
chain
cheese
chemical composition
chemical substance
chemicals
childhood disease
chitin
chromoblastomycosis
cluster
coccus (pl. cocci)
colony
colour reactions
commercial production of bakery goods
complex macromolecules
complex metabolic by-products
compromised individuals
constituent of cell
contaminate *v.*
culturing (growing)
dead organic matter
deep mycoses
deep or systemic infection
deep viscera
deoxyribonucleic acid (DNA)
destroy *v.*
destructive effect
detection
dimorphism
disintegrate animal and plant remains
dye
electronic microscope
environment
eubacteria
eukaryote
external coating of the cell
extremophiles
ferment *v.*
filament
filamentous fungi (molds)
flagella
fragment of nucleic acid
fungal cell
fungal toxins
fungicide
fungus (pl. fungi)

gene
genetic material of the cell
Gram stain
gram-negative
Gram-negative bacteria
gram-positive
Gram-positive bacteria
grow *v.*
growth
growth (nutrient) requirements
harmful
harmless
harsh surroundings
high level of salt/acid
high temperature
histologic and bacteriologic technique
host
human
hydrogen
hypha (pl. hyphae)
hyphal
identification
identify *v.*
in culture
independent metabolism
infectious agent
infectious disease agents
ingest *v.*
ingestion
inhabit *v.*
inhale *v.*
invade v.
invaded
invasive fungal diseases
invisible
laboratory media
light microscope
liquid media
living cells
lowered resistance
malabsorption
malnutrition
medical mycology
membrane-bound nucleus
microbe
microbiology
microorganism
microscope
microscopic examination
minute
minute organism
mixed-culture population
moulds
mould fungi
multi-celled
multi-cellular
mushroom
mycetism
mycology
mycosis
mycotic
mycotoxicosis
non-acid-fast
nucleus
opportunist
opportunist organism
ordinary microscope
ovoid form
pair
parasite
parasitic
passing through fine filter
pathogen
peptidoglycan
phase of life history
plant
plant cells
plant diseases
poisoning
poisonous substance
primary stain
prion
produce *v.*
production
prokaryote
prokaryotic

protein particles
proteinaceous infectious agent
protozoology
protozoon (pl. protozoa)
pure protein
purple colour
reaction to the Gram stain
reagent
recycled
reproduce *v.*
reproduction
reproductive
resemble *v.*
response *v.*
ribonucleic acid (RNA)
rod
rod-shaped
saprophyte
saprophytic
secondary invasion
secondary stain
shape
simple life-forms
single-celled organisms
size
soil and water environments
species
specific location
specimen
sphere
spherical
spiral
spiral-shaped
spirillum
spoil *v.*
spoilage
spore
spread disease
stain
staining procedure
starvation
subcellular organization
subcutaneous mycoses
superficial mycoses
survive *v.*
systemic mycoses
take the colour
take the stain's colour
technique
tetrad (group of four)
thread-like
toxicology
tropical
true bacteria
true pathogens
tubular cell
twisted spiral
unicellular
virion
virologist
virology
virucidal
viruria
virus
virus infection
virus particle
wild mushrooms
yeast fungi
yeast-like
yeasts

I. Introduction to the microbial world

Work with the recommended literature and do ex. 1-4.

1. The world of microorganisms consists of bacteria, fungi, protozoa, and viruses. Match the term and its description:

bacterium, fungus (pl fungi), protozoon (pl. protozoa), virus, viroids, prions

- a general term used to encompass the diverse morphological forms of yeasts, molds, and mushrooms**;**
- unicellular microorganism that usually multiplies by cell division and has a cell wall that provides a constancy of form. They are distinguished from one another by several factors including shape, color reactions when they are subjected to certain staining procedures, chemical compositions, and responses to various chemicals such as antibiotics**;**
- single-celled microorganisms, the lowest form of animal life; most are harmless and inhabit soil and water environments in great numbers. Some protozoa cause diseases such as malaria and the gastrointestinal infection amebic dysentery**;**
- composed of only small pieces of nucleic acid and primarily cause plant diseases**;**
- a group of infectious agents that are capable of passing through fine filters, lack independent metabolism, and are incapable of growth or reproduction apart from living cells. They are usually not visible through the light microscope; an electron microscope should be used. Thus, these forms of microorganisms are called submicroscopic. They can cause a large number of diseases, including the childhood diseases chickenpox and the more recently discovered acquired immune deficiency syndrome, or AIDS;
- consist of pure protein and are associated with central nervous system diseases.

2. Insert the correct term:

1. The study of fungi is called _____.
2. The study of viruses is called _____.
3. The study of protozoa is called _____.
4. The study of bacteria is called _____.

3. Insert the appropriate letter in the space next to the question:

____ 1. viroid _____ 2. prion
____ 3. malaria _____ 4. protozoa

a) consists of pure protein protein; b) a disease, caused by protozoa; c) smallest part of life; d) consists of only nucleic acid

4. Give the plural or singular form for:

Singular	**Plural**
Virus	
	Protozoa
Bacterium	
Fungus	

II. Combining forms, prefixes and suffixes

Write out the meaning of the combining forms. Use the Appendix:

amebo-, diplo-, etio-, onto-, staphylo-, strepto-, xeno-, -amine, -coccus, -iasis, -static, -phyte

III. Practice

1. Match the combining form and its meaning:

1) toxo-; 2) morpho-; 3) pyo-; 4) pyro-; 5) strepto-; 6) sepso-.

a) shape; b) poison; c) fever; d) pus; e) chain; f) infection.

2. Analyze medical terms:

Ontogenesis; amebiasis; diplococcus; bactericidal; pyogenic; micrococcus; mycoid; morphology; chemonucleolysis; xenobiotic; toxic; dermatophyte; diploalbuminuria; pyrometer; xenodiagnosis.

3. Find and correct spelling mistakes:

1) Preons; 2)virion; 3) antisepsic; 4) eteology; 5) bacteriod; 6) staphylococus; 7) bacteriesis.

4. Build medical terms:

Specialist in the study of small lives; production of fever; formation of disease; specialist in bacteria; treatment with drugspertaining to production by ameba; disease development; protection (prevention of a disease) with the help of drugs; killing of microbes; amebas in urine; pertaining to the measurement of form; inflammation of the skin caused by streptococci; streptococci in blood.

5. Study the table and analyze medical terms:

Characteristic morphology and arrangements of bacteria		
	Cocci	
Diplococcus		**Pairs**
Staphylococcus		**Grapelike clusters**
Streptococcus		**Chains**
Tetrad		**Boxlike arrangement of four**
Sarcinae or octad		**Groups of eight in a box-like arrangement**
	Bacilli	
Diplobacillus		**Pairs**
Streptobacillus		**Chains**

Characteristic morphology and arrangements of bacteria		
	Spirals	
Spiral		**Twisted or bent form**
Spirochete		**Compressed form**
Vibrio		**Short curved form**
	Squares	
No specific terminology in this group of cells		

6. Match the terms with the definitions:

1) diplococcus; 2) streptobacillus; 3) staphylococcus; 4) tetrad; 5) streptococcus; 6) spirochete; 7) vibrio; 8) sarcinae.

a) grapelike clusters of cocci; b) rods in chains; c) cocci in pairs; d) compressed spiral; e) cocci in a chain; f) boxlike arrangement of four cocci; g) short curved form; h) groups of eight cocci in a boxlike arrangement

7. Choose the correct terms for the following definition:

a) Exotoxin; b) Pneumococcemia; c) Morphogenesis; d) Prokaryotic; e) Prodromic; f) Macrobiotic; g) Preantiseptic; h) Micrometastatic; e) Exophyte i) Amicrobic
1) Superficial plant parasite; 2) Pertaining to the environment or factor which is not connected with the presence of microorganisms; 3) Pertaining to the stage of disease dissemination from the place of its local appearance to another part of the body, is too small to be recognized clinically; 4) Pertaining to the period in the history of medicine and surgery when disinfection was not yet put in practice; 5) Differentiation of cells in early embryogenesis which determines the form and structure of different organs and parts of the body; 6) Pertaining to factors which contribute to the prolongation of life expectancy; 7) Antigenic poisonous substance produced extracellularly by several gram-positive bacteria released to the environment; 8) Pertaining to early symptoms of a disease which occur before its main manifestation; 9) Presence of *Streptococcus pneumoniae* in blood; 10) Pertaining to unicellular microorganism without membranes around its nucleus.

8. Unscramble the following to get some words mentioned in the unit. Write down the words you obtained:

1. A infection with or disease caused by amoebas (especially Entamoeba histolytica) – BAASESIMI

2. A chemical compound (such as a drug, pesticide, or carcinogen) that is foreign to a living organism – XNEICIOTOB

3. Resembling a bacterium – RTEAIDBOCI

4. The complex of physical, chemical, and biotic factors (such as climate, soil, and living things) that act upon an organism or an ecological community and ultimately determine its form and survival – TVRINMNNEEO

5. The formation and development of the embryo -BSESEROGIYMNE

6. Bacteria in which the individual cells are often joined in a chain, especially one that is the causative agent of one form of rat-bite fever – CPBTISSTOLRUALE

7. An entire virus particle, consisting of an outer protein shell called a capsid and an inner core of nucleic acid (either ribonucleic or deoxyribonucleic acid—RNA or DNA) – RNIVOI

8. An instrument for measuring temperatures especially when beyond the range of mercurial thermometers – OEPRRTMYE

9. A small piece of protein that is thought to cause certain brain diseases, such as bovine spongiform encephalopathy (BSE) and Creutzfeldt-Jakob disease (CJD) – OIPNR

10. Pair of rod-shaped bacilli that remain joined together end-to-end following division – LOIICBUSADLLP

9. Write out the abbreviations denoting diseases (use Appendix, if necessary):

AFB, TB, AIDS, C&S, EBV, GC, HAV, HBV, HCV, HDV, HEV, HIV, HSV, IM, PCP , STD, VD, HPV.

Check yourself

Analyze the words:

1) Oncogenic; 2) antiseptic; 3) antibiotic; 4) microbiology; 5) xenophobia; 6) bacterioid; 7) pyrogenic; 8) bacteriosis; 9) protozoology; 10) pyemia.

Build medical words:

11) Pertaining to many forms; 12) the study of bacteria; 13) disease caused by poison; 14) double spherical-shaped bacteria; 15) pertaining to the production of individual (being); 16) resembling fungi; 17) bacteria in blood; 18) killing of fungi; 19) pertaining to the stopping of fever; 20) study of viruses.

APPENDIX I

COMBINING FORMS, PREFIXES, SUFFIXES

(combining form – meaning)

a – without; no; not
ab – away from
abdomeno – abdomen
-ac – pertaining to
acanthoo – thorny; spiny
acetabulo – acetabulum (hip socket)
acouo – hearing
acro – extremities
acuo – sharp
ad – forward
adamant – enamel
adeno – gland
adenoido – adenoids
adipo – fat
adreno – adrenal glands
adrenalo – adrenal glands
aero – air
agglutino – clumping; sticking together
-al – pertaining to
albo – white
albumino – protein
algesio – excessive sensitivity to pain
-algia – pain
alveolo – air sac, alveolus
amblyo – dull; dim
amnio – amnion (sac in which emryo develops)
amphi – on both sides
amylo - starch
an – no; not; without
ano – anus
ana – up; again; backward
andro – male
aneurysmo - aneurysm
angio – vessel
ankylo – crooked; bent; stiff
ante – before; forward
antero – front
anthraco - coal dust
anti – against
aorto – aorta
aponeuro – aponernosis (type of tendon)
appendo – appendix
appendico – appendix
aqueo – water
-ar – pertaining to
-arche – beginning
arteriolo – arteriole; small artery
arterio – artery
arthro – joint
articulo – joint
-ary – pertaining to
-ase – enzyme
-asthenia – lack of strength
atelo- incomplete
athero – yellowish plaque; fatty substance
atrio – atrium
audio – hearing
auri – ear
auro – ear
auto – self
axillo – armpit
azoto – nitrogen; urea
bacterio – bacteria
balano – glans penis
bartholino – Bartholin's glands
baso – base
bene – good
bi – two
bio – life
bili – bile; gall
bilirubino – bilirubin
-blast – immature; embryonic
blepharo – eyelid

bolo – cast; throw
brachio – arm
brady – slow
bronchio – bronchial tube
broncho – bronchial tube
bronchiolo- bronchiole; small bronchus
bucco – cheek
burso – bursa (sac of fluid near joints)
calco – calcium
calcaneo – calcaneus (heel bone)
calcio – calcium
calio – calyx
-capnia – carbon dioxide
carcino – cancer
cardio – heart
cario – caries
carpo – wrist
cata – down
caudo – tail; lower part of body
causo – burn
cautero – heat; burn
ceco – cecum (first part of large intestine)
-cele –- hernia
celio – abdomen; belly
cemento – cement
-centesis – surgical puncture to remove fluid
cephalo – head
cerebello- cerebellum
cerebro – brain; cerebrum
cerumino – cerumen(wax in inner ear)
cervico – neck; neck of uterus
cheilo – lip
chemo – drug; chemical
chiro – hand
chole – bile; gall
cholecysto – gallbladder
choledocho – common bile duct
chorio – chorion; extra-embrionic membrane
chondro – cartilage
chromo –- color
chrono – time
cibo – meals
-cidal – killing
cineo – movement
ciso – cut
-clast – break
claviculo – clavicle(collar bone)
-clysis – washing; irrigation
-coccus (-cocci, pl.) – berry-shaped
coccygo – coccyx; tail bone
colo – colon (large intestine)
colpo – vagina
con – with; together
conio – dust
conjunctivo – conjubctiva
contra – against; opposite
coro- pupil
coreo – pupil
corneo – cornea
corono – heart
cortico – cortex
costo – rib
cranio – skull
craso – disease; mixture
-crine – secrete; separate
-crit – separate
crino – secrete
cryo – cold
crypto – hidden
culdo – cul-de – sac
cusis – hearing
cutaneo – skin
cyano – blue
cyclo – ciliary body of eye
-cyesis – pregnancy
cysto – urinary bladder; sac of fluid
-cyte - cell
cyto - cell
-cytosis - condition of cell
dacryo – tear

dacryoadeno – tear gland
dacryocysto – tear sac; lacrimal sac
dactylo – finger (toe)
de – lack of
denti – tooth
dentino – dentin
-derma – skin
dermato – skin
dermo – skin
-desis – binding, fusion
di – complete
dia – complete, through
diaphoro – sweat
diplo – double
dipso – thirst
disto – far
dorso – back
-drome – run
ducto – to lead; carry
duodeno – duodenum
duro – dura mater
dys – bad; painful; difficult
ec – out: outside
echo – sound
-ectasia – stretching; dilation
-ectasis – stretching; dilation
ecto – outside; out
-ectomy – surgical removal; excision; resection
electro – electricity
em – in
-emesis – vomitig
-emia – blood condition
emmetro – in due measure
-empraxis – obstruction; blockage
en – in; within
enamelo – enamel
encephalo – brain
endo – within
entero – intestines
eosino – pink; dawn-colored
epi – above; upon
epididymo – epididymis
epiglotto – epiglottis
episio – vulva
-er – one who
ergo – work
erythema – redness
erythro – red
eso – inward
esophago – esophagus
esthesio – feeling
estro – female
ethmo – sieve
etio – cause
eu – good
ex – out
exo – outside
fascio – fascia
femoro – femur
fibulo – fibula
fibrino – fibrin
fluoro – luminous
folliculo – small sac
furco – branching
-fusion – pour
ganglio – ganglion
gastro – stomach
geno – producing; beginning
-genesis – development; production; origin; condition of
germo – seed; sprout
gingivo – gums
glauco – gray
glio – glue; neurologlial tissue
-globin – protein
-globulin – protein
glomerulo – glomerulus
glosso – tongue
gluco – sugar
glyco – sugar
glycogeno – glycogen

gnatho – jaw
gnoso – knowlege
gonado – sex glands
gono – seed
-grade – go
-gram – record
granulo – granules
-graph – instrument for recording
-graphy – process of recording
gravido – pregnancy
gyneco – woman; female
hemo – blood
hemato – blood
hemi – half
hepato – liver
hernio – hernia
hidro – sweat
histo – tissue
histio – tissue
homeo – constant
humero – humerus
hydro – water
hyper – above; excessive
hypno – sleep
hypo – under; below; deficient
hystero – uterus; womb
-ia – condition; process
-iasis – condition
iatro – physician
-ic – pertaining to
idio-individual;own; self
ileo – ileum
ilio – ilium
immuno – safe; protection
in – in; not
infra – below; inferior
inguino – groin
inter – between
intra – within
iono – charged particles
irido – iris
iro – iris
ischio – ischium
ischo – to hold back
iso – equal
-ist – specialist
-itis – inflammation
jejuno – jejunum
kali – potassium
karyo – nucleus
kerato – cornea; horny; hard
kinesio – movement
kypho –- humpback
labia – lip
lacrimo – tear
lacto – milk
lamino – lamina
laparo – abdomen; abdominal wall
laryngo – larynx; voice box
latero – side
leiomyo – smooth muscle
leuko – white
ligamento – ligament
linguo – tongue
lipo – fat
-lith – stone; calculus
litho – stone; calculus
lobo - lobe
-logy – science; study
lordo – swayback; curve
luco – light; transparent
lumbo – lower back; loins
lympho – lymph
lymphedema – lymph gland
lymphangio – lymph vessels
-lysis – destruction; break down
- lytic – pertainig to destruction
macro – large
mal – bad
-malacia – softening
mammo – breast
mandibulo – lower jaw

masto – breast
mastoido – mastoid process
maxillo – upper jaw
medio – middle
medullo – medulla
-megaly – enlargement
melano – black
meno – menses; menstruation
meningio – meninges
meningo – meninges
mento – chin
meso – middle
meato – meatus
meta – beyond; change; near
metacarpo - metacarpas
-meter – measure
metrio – uterus
metro – uterus
mio – small; less than
micro – small
mimetic – mimic; copy
mito – thread
mono – one
morpho – shape
morto – death
muco – mucus
muta – genetic change
myco – fungus; mold
myelo – bone marrow
myelo – spinal cord
myo – muscle
myoso – muscle
myringo- eardrum
mixo - mucus
narco – numbness; stupor
naso – nose
nati – birth
natro – sodium
necro – death
necto – bind; tie; connect
neo – new
nephro – kidney
neuro – nerve
neutro – neutral
nocti – night
normo – normal
nucleo – nucleus
oculo – eye
odonto – tooth
-odynia – pain
-oid – resembling
-ole – small; little
olecrano – elbow
oligo – scanty
-ology – study of
-oma – tumor
onco – tumor; mass
onycho – nail
ovo – egg
oophoro – ovary
-opaque – dark
opaco – dark
ophthalmo – eye
-opia – vision
-opsy – view
-or – one who
orchido – testis
orchio – testis
orcho – testis
oro – mouth
-orrhea - flow
-orrhagia - bursting forth of blood
-orhaphy – suture
-orrhexis – rupture
ortho – straight
-osis – condition; abnormal
-osmia – smell
osteo – bone
-ostomy – make a new opening
oto – ear
-otomy – incision; cut into
-ous – pertaining to

ovario – ovary
ovo – egg
oxo – oxygen
pachy – thick, heavy
pachyo – thick, heavy
palate – palate
pan – all
pancreato – pancreas
papillo – nipple-like
para – near; beside
-para – birth
parathyroido – rarathyroid glands
-paresis – slight paralysis
- partum – delivery; birth; labour
patello – knee cap
patho – disease
-pathy – disease
pectoro – chest
pelvi – pelvis
pelvo – pelvis
-penia – deficiency
-pepsia – digestion
per – through
peri – surrounding
perineo – perineum
peritoneo – peritoneum
-pexy – fixation
-phagia – eating; swallowing
phago – eat; swallow
phalango – phalanges
pharmaco – drug; chemical
pharyngo – pharynx; throat
phaso – speech
pheo – dusky
-pheresis – removal
-philia – attraction for
philo – attraction to
phlebo – vein
phobo – fear
-phobia – fear
-phonia – sound
-phonia – voice
-phoresis – transmission
-phoria – feeling
photo – light
phreno – diaphragm
phreno – mind
-phylaxis – protection
-physio – nature
-physis – growth
pineo – breathing
-plasia – development
-plasm – growth
-plasty – surgical repair
-plegia – paralysis
pleo – more
pleuro – pleura
plexo – plexus
-pnea – breathing
pneo – breathing
pneumo – lung
pneumono – lung
-poiesis – formation
poikilo – irregular
polio – gray matter
ponto – pons
poly – many
polypo – polyp
-porosis – passage
post – after
postero – back
-prandial – meal
pre – before
presbyo – old age
pro – before
proteo – first
proteo – protein
proto – first
procto – anus
prostato – prostate gland
proximo – near
pseudo – false

psycho – mind
-ptosis – drooping
-ptysis – spitting
pubo – pubic bone
pulmono – lung
pulpo – pulp
pupillo – pupil
pyelo – renal pelvis
pyloro – pylorus
pyo – pus
pyro – fever
rachio – spinal column
radi – root
radio – rays; radius
re – back
recto – rectum
reno – kidney
reticulo – network
retino – retina
retro – behind
rhabdomyo – striated muscle
rhino – nose
ribo – sugar
roentgeno – x-rays
-rrhaphy – suture
-rrhea – flow
-rrhexis – rupture
salpingo – fallopian tube; eustachian tube
-salpinx – fallopian tube
sacro – sacrum
sarco – flesh
scapulo – shoulder blade
schisis – cleft
scinti – spark
scirrho – hard
sclero – sclera
-sclerosis – hardening
scolio – crooked; bent
-scope - instrument for visual examination
scopo – visual examination
scoto – darkness
sebo – sebum
sectio – cut
semi – half
sepso – infection
sialo – saliva
sialadeno – salivary glands
sidero – iron
sigmoido – sigmoid colon
sinuso – sinus
somo – body
somato – body
somno – sleep
sono – sound
squamo – scale
-spasm – sudden contraction of muscles
spermato – spermatozoa
spermo – spermatozoa
spheno – wedge
sphero – globe-shaped
sphygmo – pulse
spino – spine
spiro – breathing
spleno – spleen
spondylo – vertebra
squamo – scale
-stalsis – contraction
stapedo – stapes
staphylo – grapes
-stasis – stop
-static – stopping
steato – fat
-stenosis – tightening
sterno – sternum
stetho – chest
stereo – three-dimensional
stero – solid
-sthenia – strength
stomato – mouth
-stomy – to make a new opening
strepto – twisted chains
sub – under

submaxillo – lower jaw
super – above
supra – above
sym – together
syn – together
syndesmo – ligament
synovio – synovia
syringo – tube
tachy – fast
taxo – order
taxo – coordination
tele – distant
teno – tendon
tendo – tendon
tendino – tendon
terato – monster
testo – testis
thalamo – thalamus
thalasso – sea
theo – put; place
thelo – nipple
theco – sheath, meningeal covering
-therapy – treatment
thermo – heat
thoraco – chest
-thorax – pleural cavity
thrombo – clot
thymo – thymus gland
thyro – thyroid gland
thyroid – thyroid gland
-tic – pertaining to
tibio – tibia
-tocin – labour; delivery
-tome – instrument to cut
tomo – cut
-tomy – surgical cutting
tonsillo – tonsils
topo – place
-tocia – delivery
toxico – poison
toxo – poison
tracheo – trachea
trans – across
-tresia – opening
tricho – hair
-trophy – development, nourishment
-tropia – turn
tympano – eardrum
-ule – small
ulno – ulna
ultra – beyond
unguo – nail
uretero – ureter
urethro – urethra
-uria – urination; urine
uro – urine
uveo – vascular layer of the eye
utero – uterus
vagino – vagina
valvo – valve
vaso – vessel
veno – vein
ventriculo – ventricle
ventro – belly
venulo – venule
vertebro – vertebra
vesico – urinary bladder
viro – virus
viscero – internal organs
vita – life
vito – life
vitreo – glassy
vulvo – vulva
xantho – yellow
xeno – foreign
xero – dry
-y – condition
zoo – animal life
zymo – catalyst

(meaning – combining form)

abdomen – abdomino
abdomen – celio
abdominal wall – laparo
abnormal – para-
above – epi-
above – hyper-
above – super-
above – supra-
acetabulum – acetabulo
across – trans-
adenoids – adenoido
adrenal glands – adreno
adrenal glands – adrenalo
after – post-
again – ana-
against – anti-
against – contra-
air – aero
air – pneumono
air – pneumo
air sac, alveolus – alveolo
all – pan-
alveolus – alveolo
amnion – amnio
aneurysm – aneurysmo
animal life – zoo
anus – ano
anus and rectum – procto
aorta – aorto
aponeurosis – aponeuro
appendix – appendo
appendix – appendico
arm – brachio
arm bone, lower jaw – radio
arm bone, lower jaw – ulno
arm bone, upper – humero
armpit – axillo
arteriole – arteriolo
artery – arterio
atrium – atrio
attraction for – -philia
attraction to – philo
away from – ab-
back – dorso
back – postero
back – re-
back – retro-
back, lower – lumbo
backbone – spino
backward – ana-
bacteria – bacterio
bad – dys-
bad – mal-
Bartholians gland – bartholino
Base – baso
before – ante-
before – pre-
before – pro-
beginning – -arche
beginning – geno
behind – post-
behind – retro-
belly – celio
belly side – ventro
bellow – hypo-
below – infra-
bellow – sub-
bent – ankylo
bent – scolio
berry-shaped – -coccus
beside – para-
between – inter-
between – meta-
beyond – hyper-
beyond – meta-
beyond – ultra-
bile – bili
bile – chole
bile duct,common – choledocho
bilirubin – bilirubino

bind – necto
binding – -desis
birth – nati
bsrth – -para
birth – -partum
birth – -tocia
black – melano
bladder – cysto
bladder – vesico
blockage – -emphraxis
blood – hemato
blood – hemo
blood condition –- -emia
blue – cyano
body – somato
body – -some
body – somo
bone – osteo
bone marrow – myelo
both sides – amphi-
brain – cerebro
brain – encephalo
branching – furco
break – -clast
breakdown – -lysis
breast – mammo
breast – masto
breastbone – sterno
breathing – spiro
breathing – pneo
breathing – -pnea
breathing – pneo
bronchial tube – bronchio
bronchial tube – broncho
bronchiole – bronchiolo
burn – causo
burn – cautero
bursa – burso
bursting forth of blood – -orrhagia
calcaneus – calcaneo
calcium – calco
calcium – calico
calculus – litho
calyx – calio
cancer – carcino
carbon dioxide - -capnia
carpus – carpo
carry – ducto
carrying – -phoresis
cartilage – chondro
cast, to – bolo
catalyst – zymo
cause – etio
cavity – sinuso
caries – cario
cecum – ceco
cell – -cyte
cell – cyto
cells, condition of – -cytosis
cement – cemento
cerebellum – cerebello
cerumen – cerumino
cervix – cervico
change – meta-
change, genetic – muta
charged particles – iono
cheek – bucco
chemical – chemo
chemical – pharmaco
chest – pectoro
chest – stetho
chest – thoraco
chest – -thorax
chorion – chorio
chin – mento
ciliary body – cyclo
clavicle – claviculo
cleft – -schisis
clot – thrombo
clumping – agglutino
clusters – staphylo
coal dust – anthraco

coccyx – coccygo
cold – cryo
collar bone – claviculo
colon – colo
colon – colono
color – chromo
common bile duct – choledocho
complete – di-
complete – dia-
condition – -ia
condition – -iasis
condition, usually abnormal – -osis
condition – -y
condition of cell – cytosis
conjubctiva – conjunctivo
connect – necto
constant – homeo
contriction – -stalsis
contraction of muscles – -spasm
control – -stasis
controlling – -static
coordination – taxo
copy – -mimetic
cornea – corneo
cornea – kerato
cortex – cortico
crooked – ankylo
cul-de-sac – culdo
curve – lordo
cut – ciso
cut – sectio
cut into – -otomy
cyst – cysto
dark – opaco
dark – -opaqo
darkness – scoto
dawn-colored – eosino
death – morto
death – necro
deficiency – hypo-
deficiency – -penia
delivery – -tocin
delivery – - partum
delivery – - tocia
destroy – -lysis
dentin – dentino
destruction – -lytic
development – -plasia
development – plaso
development – -trophy
development – -tropin
development, production, orogin – -genesis
diaphragm – phreno
difficult – dys-
digestion – -pepsia
dilation – -ectasia
dilation – ectasis
dim – amblyo
discharge – -orrhea
disease – craso
disease – patho
disease process – -pathy
distant – teleo
down – cata-
dropping – -ptosis
double – diplo-
drug – chemo
drug – pharmaco
drug –chemo
dry – xero
duct – vaso
dull – amblyo
duodenum – duodeno
dura mater – duro
dusky – pheo
dust – conio
ear – auri
ear – auro
ear – oto
eardrum – myringo
eardrum – tympano

eat – phago
eating – -phagia
egg – ovo
elbow – olecrano
electricity – electro
embryonic – -blast
enamel – adamanto
enamel – enamelo
enlargement – -megaly
enzyme – -ase
epididymus – epididymo
epiglottis – epiglotto
equal – iso
erain – encephalo
esophagus – esophago
eustachian tube – salpingo
examination(visual) – scopo
excess – ultra-
excessive – hyper-
excision – -ectomy
excessive sensitivity to pain – algesio
extremities – acro
eye – oculo
eye – ophthalmo
eyelid – blepharo
fallopian tube – salpingo
fallopian tube – -salpinx
false – pseudo-
far – disto
far – teleo
fascia – fascio
fast – tachy-
fat – adipo
fat – lipo
fat – steato
fatty substance – athero
fear – -phobia
fear – phobo
feeling – esthesio
feeling – -phoria
female – estro
female – gyneco
femur – femoro
fever – pyro
fibers – fibro
fibrin – fibrino
fibula – fibula
fibula – peroneo
finger (toe) – dactylo
finger bones – phalango
finger-like – papillo
first – proto
first – proteo-
fixation – -pexy
flesh – sarco
flow – -rrhea
flow – orrhea
flushed – erythema
follicle – folliculo
forking – furco
form – morpho
foreign – xeno
formation – plaso
formation – -plasia
formation – -plasm
formation – -poiesis
forming, condition of – -genesis
forward – ante-
front – antero
fungus – myco
gall – bili
gall – chole
gallbladder – cholecysto
ganglion – ganglio
ganglion – -ganglion
genetic change – muta
gland – adeno
glans penis – balano
glassy – vitreo
globe-shaped – sphero
glomerulus – glomerulo
glue – glio

glycogen – glycogeno
go – -grade
going – iono
good – bene-
good – eu-
granules – granulo
grapes – staphylo
gray – glauco
gray matter – polio-
groin – inguino
growth – -physis
growth – -plasia
growth – plasm
gum – gingivo
hair – tricho
half – hemi-
half – semi-
hand – chiro
hand bone – metacarpo
hard – kerato
hard – scirrho
hardening – -sclerosis
head – cephalo
hearing – acouo
hearing – audio
hearing – -cusis
heart – cardio
heart – corono
heart muscle – myocardio
heat – cautero
heat – thermo
heavy – pachy
heavy – pachyo
heel bone – calcaneo
hernia – -cele
hernia – hernio
hidden – crypto
hip – pelvi
hip – pelvo
hip socket – acetabulo
hold back – ischo
horny – kerato
humerus – humero
humpback – kypho
ileum – ileo
ilium – ilio
immature cell – -blast
in – em-
in – -en
in – in
in due measure – emmetro
incision – -otomy
incision – -tomy
incomplete – atelo
individual – idio-
inferior – infra-
infection – sepso
inflammation – itis
instrument to cut – -tome
instrument to record – -graph
instrument to visual examination – scope
internal organs – viscero
intestine, small – entero
intestine, large – colo
inward – eso-
ion – iono
iris – irido
iris – iro
iron – sidero
irregular – poikilo
irrigating – -clysis
ischium – ischio
jaw bone, lower – mandibulo
jaw bone, lower – submaxillo
jaw bone,upper – maxillo
jaw – gnatho
jejunum – jejuno
joint – arthro
joint – articulo
joint fluid – synovio
kidney – nephro
kidney – reno

killing – -cidal
knee cap – patella
knowledge – gnoso
labour – -partum
labour – -tocia
labour – -tocin
lack of – de-
lacrimal duct – lacrimo
lacrimal sac – dacryocysto
lamina – lamino
large – macro-
large intestine - colo
larynx – laryngo
lead, to – ducto
leaving agent – zymo
life – bio
life – vita
life – vito
ligament – ligamento
ligament – syndesmo
light – luco
light – photo
like, to – philo
lip – cheilo
lip – labio
little – -ole
little – -ule
liver – hepato
lobe – lobo
location - topo
lower back – lumbo
loins – lumbo
love – philo
lower jaw – mandibulo
lower jaw – submaxillo
luminous – fluoro
lung – pneumo
lung – pneumono
lung – pulmono
lymph – lympho
lymph gland – lymphadeno
lymph vessels – lymphangino
make a new opening – -stomy
male – andro
many – poly-
mass – onco
mastoid process – mastoido
meal – -prandial
msal – cibo
measure – -meter
medulla – medullo
membrains – meningo
membrains – meningio
meninges – meninges
menses – meno
metacarpals – metacarpo
menstruation – meno
meatus – meato
medullary – medullo
meninges – meningio
middle – medio
middle – medullo
middle – meso-
midle ear – tympano
milk – lacto
mimic – -mimetic
mind – phreno
mind – psycho
mixture – craso
mold – myco
monster – terato-
more – pleo
mouth – oro
mouth - stomato
movement – cineo
movement – kinesio
mucus – muco
muscle – myxo
muscle – myo
muscle – myoso
muscle, smooth – leiomyo
muscle, striated – rhabdomyo

mutation – muta-
nail - onycho
nail - unguo
nature – -physio
near – meta-
near – para-
near – proximo
neck – cervico
neck of the uterus – cervico
neither – neutro
nerve – neuro
network – reticulo
neurological tissue – glio
neutral – neutron
new – neo
night – nocti
nipple – thelo
nipple-like – papillo
nitrogen – azoto
no – -a
no – -an
no strength – -asthenia
normal – normo
nose – naso
nose – rhino
not – -a
not – -an
nourishment – -trophy
nourishment – -tropin
nucleus – karyo
nucleus – nucleo
numbness – narco
-obstruction, blockage – empraxis
old age – presbyo
on – epi-
one – mono
one who – -er
one who – -or
ones own – idio
opening – -tresia
opening, new – -ostomy
opposite – contra-
order – normo
order – taxo
out – ex-
out – ec-
out – -ecto
outside – ec-
outside – ecto-
outside – exo
ovary – oophoro
ovary – ovario
oviducts – salpingo
oxygen – oxo
pain – -algia
pain – -odynia
pain, excessive sensitivity to – algesio
painful – dys-
palate – palate
palsy – -plegia
pancreas – pancreato
paralysis – -plegia
paralysis, slight – -paresis
parathyroid gland – parathyroido
passage – -porosis
paste – athero
patella – patella
pelvic bone and cavity – prlvo
peineum – perineo
pelvis – pelvi
peritoneum – peritoneo
pertainig to destruction – lytic
pertaining to – -ac
pertaining to – -ic
pertaining to – -ous
pertaining to – -al
pertaining to – -ar
pertaining to – -ary
pertaining to – -tic
pertaining to stopping – -static
phalanges – phalango
pharynx – pharyngo

physician – iatro
pink – eosino
place – topo
pleura – pleuro
plexus – plexo
poison – toxico
poison – toxo
polyp – polypo
pons – ponto
porridge – athero
position – topo
potassium – kali
pour, to – -fusion
pregnancy – -cyesis
pregnancy – gravido
process – -ia
process – -y
producing – geno
producing – -genesis
prolapse – -ptosis
process of recording – graphy
prostatic gland – prostato
protection – immune
protection – -phylaxis
protein – albumin
protein – proteo
protein – -globin
protein – -globulin
pubic bone – pubo
pulp – pulpo
pulse – sphygmo
puncture to remove fluid – -centesis
pupil – coreo
pupil – coro
pupil – pupillo
pus – pyo
pylorus – pyloro
radioactivity – radio
radius – radio
rays – radio
record – -gram
recording, processof – -graphy
rectum – recto
red – eosino
red – erythro
redness – erythema
removal – -ectomy
removal – pheresis
renal pelvis – pyelo
resection – -ectomy
resembling – -oid
retina – retino
ribs – costo
rosy – eosino
round – sphere
rule – normo
run – -drome
root – radi
rupture – -rrhexis
sac, small – alveolo
sac, small – folliculo
sac of fluid – cysto
sacrum – sacro
safe – immune
sagging – -ptosis
saliva – sialo
salivary glands – sialadeno
same – iso
sameness – homeo
scale – squamo
scanty – oligo
scapula – scapula
sclera – sclera
sea – thalasso
science – -logy
sebum – sebo
secrete – -crine
secrete – crino
section – -tomy
seed – germo
seed – gono
self – auto

self – idio
seminal vessels – vesiculo
sensation – esthesio
separate – -crine
separate – -crit
separate – -lysis
sex glands – gonado
shape – morpho
sharp – acuo
sheath, meningeal covering – theco
shoulder blade – scapula
shield – thyro
shin bone – tibio
side – latero
sieve – ethmo
sigmoid colon – sigmoido
single – mono
sinus – sinuso
skeletal muscle – rhabdomyo
skin – cutaneo
skin – dermato
skin – dermo
skin – derma
skull – cranio
sleep – hypno
slight paralysis – -paresis
slow – brady
small – micro
small – mio
small – ole
small – -ule
small intestine – entero
small sac – folliculo
smell – -osmia
smooth muscle – leiomyo
sodium – natro
soft – meddulo
softening – -malacia
solid – stereo
solid structure – stero
sound – echo
sound – -phonia
sound – sono
spark – scinti
specialist – -ist
speech – phaso
spermatozoa – spermato
spermatozoa – spermo
sphenoid bone – spheno
spinal column – rachio
spinal cord – myelo
spine – spino
spiny – acantho
spitting – -ptysis
spleen – spleno
sprout – germo
stapes – stapedo
starch – amylo
sternum – sterno
sticking together – agglutino
stiff – ankylo
stomach – gastro
stone – lith
stone – litho
stop – -stasis
stopping – -static
straight – ortho
strength – -sthenia
strength, lack of – -asthenia
stretching – ectasia
stretching – -ectasis
stricture – -stenosis
striated muscle – rhabdomyo
study of – -logy
study of – -ology
stupor – nacro
sudden contraction of muscles – - spasm
sugar – gluco
sugar – glyco
sugar – ribo
surgical cutting – -tomy
surgical puncture – centesis

surgical removal – -ectomy
surgical repaire – -plasty
surrounding – peri-
suture – -orrhaphy
swallow – phago
swallowing – -phagia
swayback – lordo
sweat – diaphoro
sweat – hidro
synovia – synovio
tail – caudo
tailbone – coccygo
tear – dacryo
tear – lacrimo
tear duct – lacrimo
tear gland – dacryoadeno
tear sac – dacryocysto
tendon – teno
tendon – tendo
tendon – tendino
testes – testo
testis – orcho
testis – orchido
thalamus – thalamo
thick – pachy
thick – pachyo
thigh bone – femoro
thirst – dipso
thorny – acantho
thread – mito
threads of a clot – fibrino
three-dimensional – stereo
throat – pharyngo
through – dia-
through – per-
throw – bolo
thymus gland – thymo
thyroid gland – thyro
thyroid gland – thyroido
tibia – tibio
tie – necto
tightening – -stenosis
time – chrono
tissue – histo
tissue – histio
toe – dactyl
toe bones – phalango
together – con-
together – sym-
together – syn-
tongue – glosso
tongue – linguo
tonsils – tonsillo
tooth – denti
tooth – odonto
toward – ad-
trachea – trachea
transmission – -phoresis
transparent – luco
treatment – -therapy
tube – syringo
tumor – -oma
tumor – onco
turn – -tropia
twisted chains – strepto
two – bi-
ulna – ulno
unchanging – homeo
under – hypo-
under – sub-
up – ana-
upon – epi-
upper jaw – maxilla
urea – azoto
ureter – uretero
urethra – urethro
urinary bladder – cysto
urinary bladder – vesico
urinary tract – uro
urination – -uria
urine – -uria
urine – uro

uterus – hysteron
uterus – metro
uterus – metrio
uterus – metro
uterus – utero
vagina – colpo
vagina – vagino
valve – valvo
varied – poikilo
vascular layer of the eye – uveo
valv – valvo
vas deferens – vaso
vein – phlebo
vein – veno
vein, small – venulo
ventricle – ventriculo
venule – venulo
vertebra – rachio
vertebra – spondylo
vertebra – vertebro
vessel – angio
vessel – vaso
view,to – -opsy
virus – viro
visceral muscle – leiomyo
vision – -opia
visual examination – scopo, scopy
vitreous body – vitreo
voice – -phonia
voice box – laryngo
vomitig – -emesis
vulva – episio
vulva – vulvo
wander – iono
washing – -clysis
water – aqueo
water – hydro
wax(ear) – cerumino
wedge – spheno
weak, dull – amblyo-
white – albino
white – albo
white – leuko
white of the eye – sclera
windpipe – tracheo
with – con-
with – sym-
with – syn-
within – en-
within – endo-
within – intra-
without – a-
wsthout – an-
woman – gyneco
work – ergo
wrist – carpo
yellow – xantho
yellowish plaque – athero
x-rays – radio
x-rays – roentgeno

APPENDIX II

Abbreviations (including those used in medical records and clinical notes)

AAA – abdominal aortic aneurysm
AB, ab – abortion, antibodies
ABC – aspiration biopsy cytology
abdo – abdomen
ABG – arterial blood gas
ABO – blood groups A, AB, B, and O
AC – air conduction
ac – before meals
Acc – accommodation
ACL – anterior cruciate ligament
ACTH – adrenocorticotropic hormone
AD – Alzheimer disease
AD – right ear
ADH – antidiuretic hormone (vasopressin)
AE – above the elbow
AF – atrial fibrillation
AFB – acid-fast bacillus (TB organism)
AGN – acute glomerulonephritis
AI – artificial insemination
AIDS – acquired immunodeficiency syndrome
AK – above the knee
alk phos – alkaline phosphatase
ALL – acute lymphocytic leukemia
ALS – amyotrophic lateral sclerosis; also called Lou Gehrig disease
ALT – alanine aminotransferase (elevated in liver and heart disease);
AML – acute myelogenous leukemia
AN – antenatal
ANS – autonomic nervous system
ant – anterior
AP – anteroposterior
APTT – activated partial thromboplastin time
ARDS – acute respiratory distress syndrome
ARF – acute renal failure
ARMD, AMD – age-related macular degeneration
AS – aortic stenosis
AS – left ear
ASD – atrial septal defect
ASHD – arteriosclerotic heart disease
AST – angiotensin sensitivity test; aspartate aminotransferase (cardiac enzyme, formerly called SGOT)
Ast – astigmatism
ATN – acute tubular necrosis
AU – both ears
AV – atrioventricular, arteriovenous

Ba – barium
BaE – barium enema
baso – basophil (type of white blood cell)
BBB – bundle branch block
BC – bone conduction
BCC – basal cell carcinoma
BE – below the elbow
BEAM – brain electrical activity mapping
bid – twice a day
BK – below the knee
BM – bowel movement
BMR – basal metabolic rate
BNO – bladder neck obstruction
BP – blood pressure
BPH – benign prostatic hyperplasia; benign prostatic hypertrophy
BSE – breast self-examination
BUN – blood urea nitrogen
Bx, bx – biopsy

C&S – culture and sensitivity
C1, C2 – first cervical vertebra, second and so on cervical vertebra, and so on
Ca – calcium; cancer
CA – cancer; chronological age; cardiac arrest
CABG – coronary artery bypass graft
CAD – coronary artery disease
CAT – scan scan
cath – catheterization; catheter

CBC – complete blood count
CBC – complete blood count (US)
CC – cardiac catheterization
CCU – coronary care unit
CDH – congenital dislocation of the hip
CHD – coronary heart disease
CHF – congestive heart failure
Chol – cholesterol
CK – creatine kinase (cardiac enzyme)
CLL – chronic lymphocytic leukemia
cm – centimeter
CML – chronic myelogenous leukemia
CNS – central nervous system
CO2 – carbon dioxide
COPD – chronic obstructive pulmonary disease
CP – cerebral palsy
CPD – cephalopelvic disproportion
CPR – cardiopulmonary resuscitation
CS, C-section cesarean section
CSF – cerebrospinal fluid
CT – computed tomography
CTS – carpal tunnel syndrome
CV – cardiovascular
CVA – cerebrovascular accident
CVS – chorionic villus sampling
CVS – cardiovascular system; cerebrovascular system
CWP – childbirth without pain
CXR – chest x-ray, chest radiograph
cysto – cystoscopy

D – diopter (lens strength)
D&C – dilatation (dilation) and curettage
DC – discharge
decub – decubitus (ulcer); bedsore
derm – dermatology
DI – diabetes insipidus; diagnostic imaging
diff – differential count (white blood cells)
DJD – degenerative joint disease
DKA – diabetic ketoacidosis
DM – diabetes mellitus
DOE – dyspnea on exertion
DRE – digital rectal examination
DSA – digital subtraction angiography
DUB – dysfunctional uterine bleeding
DVT – deep vein thrombosis
Dx – diagnosis

EBV – Epstein-Barr virus
ECG, EKG – electrocardiogram
ECHO – echocardiogram; echoencephalogram
ED – erectile dysfunction; emergency department
EEG – electroencephalogram; electroencephalography
EGD – esophagogastroduodenoscopy
Em – emmetropia
EMG – electromyography
ENT – ears, nose, and throat
EOM – extraocular movement
eos – eosinophil (type of white blood cell)
ERCP – endoscopic retrograde cholangiopancreatography
ESR, sed rate – erythrocyte sedimentation rate; sedimentation rate
ESRD – end-stage renal disease
ESWL –extracorporeal shockwave lithotripsy
EU – excretory urography; also called intravenous pyelography (IVP) or intravenous urography (IVU)

F – female
fb – finger breadth
FECG; FEKG – fetal electrocardiogram
FHR – fetal heart rate
FHT – fetal heart tone
fMRI – functional magnetic resonance imaging
FS – frozen section
FSH – follicle-stimulating hormone
FTND – full-term normal delivery
FVC – forced vital capacity
Fx – fracture

G – gravida (pregnant)
g – gram
GB – gallbladder
GBS – gallbladder series
GC – gonorrhea
GER – gastroesophageal reflux
GERD – gastroesophageal reflux disease
GH – growth hormone
GI – gastrointestinal
GIS – gastrointestinal system
GU – genitourinary
GUS – genito urinary system
GVHR – graft-versus-host reaction
GYN – gynecology

HAV – hepatitis A virus
Hb, Hgb – hemoglobin
HBP – high blood pressure
HBV – hepatitis B virus
HCT, Hct – hematocrit
HCV – hepatitis C virus
HD – hemodialysis; hip disarticulation; hearing distance
HDL – high-density lipoprotein
HDN – hemolytic disease of the newborn
HDV – hepatitis D virus
HEV – hepatitis E virus
HF – heart failure
HIV – human immunodeficiency virus
HMD – hyaline membrane disease
HNP – herniated nucleus pulposus (herniated disk)
HP – hemipelvectomy
HPV – human papillomavirus
HRT – hormone replacement therapy
hs – at bedtime
HSG – hysterosalpingography
HSV – herpes simplex virus

I&D – incision and drainage
I.V., IV – intravenous
IBS – irritable bowel syndrome
ICF – intracellular fluid
ICP – intracranial pressure
ICS – intercostal space
ID – intradermal
IDDM – insulin-dependent diabetes mellitus
Igs – immunoglobulins I.M.,
IM – intramuscular; infectious mononucleosis
IMP – impression (synonymous with diagnosis)
IOL – intraocular lens
IOP – intraocular pressure
IPPB – intermittent positive-pressure breathin
IRDS – infant respiratory distress syndrome
IS – intracostal space
ITP – idiopathic thrombocytopenia purpura
IUD – intrauterine device
IUGR – intrauterine growth rate; intrauterine growth retardation
IVC – inferior vena cava
IVF-ET – in vitro fertilization and embryo transfer
IVP – intravenous pyelography; also called excretory urography (EU) or intravenous urography (IVU)
IVU – intravenous urography(IVU); also called excretory urography (EU) or intravenous pyelography (IVP)

K – potassium (an electrolyte)
KD – knee disarticulation
KUB – kidney, ureter, bladder

L – left
L1, L2 – first lumbar vertebra, second and so on lumbar vertebra, and so on
LAT, lat – lateral
LBW – low birth weight
LD – lactate dehydrogenase; lactic acid dehydrogenase (cardiac enzyme)
LDL – low-density lipoprotein
LH – luteinizing hormone
LKS – liver, kidney and spleen
LLL – left lower lobe

LLQ – left lower quadrant
LLQ – left lower quadrant
LMP – last menstrual period
LOC – loss of consciousness
LP – lumbar puncture
LSO - left salpingo-oophorectomy
lt – left
LUA – left upper arm
LUQ – left upper quadrant
LV – left ventricle; lumbar vertebra
lymphos – lymphocytes

M – male
MCH – mean corpuscular hemoglobin; mean cell hemoglobin (average amount of hemoglobin per cell)
MCHC – mean cell hemoglobin concentration (average concentration of hemoglobin in a single red cell)
MCV – mean cell volume (average volume or size of a single red blood cell MCV macrocytic cells; low MCV microcytic cells)
MEG – magnetoencephalography
MG – myasthenia gravis
mg – milligram
MI – myocardial infarction
mix astig – mixed astigmatism
mL, ml – milliliter
MRA – magnetic resonance angiogram; magnetic resonance angiography
MRI – magnetic resonance imaging
MRI – scan magnetic resonance imaging scan
MS – musculoskeletal; multiple sclerosis; mental status; mitral stenosis
MSH – melanocyte-stimulating hormone
MVP – mitral valve prolapse
Myop – myopia

Na – sodium (an electrolyte)
NB – newborn
NCV – nerve conduction velocity
NG – nasogastric
NIDDM – non-insulin-dependent diabetes mellitus
NIHL – noise-induced hearing loss
NMR – nuclear magnetic resonance
NMTs – nebulized mist treatments
nocte – at night
NPH – neutral protamine Hagedorn (insulin)
npo – nothing by mouth
NSAIDs – nonsteroidal antiinflammatory drugs

O_2 – oxygen
OB – obstetrics
Obs – obstetrics
OCPs – oral contraceptive pills
OD – Doctor of Optometry
OD – right eye
ORTH, ortho – orthopedics
OS – left eye
OU – both eyes together

P – phosphorous; pulse
p.c. – after food
p.o. – by mouth
PA – posteroanterior; pernicious anemia
PAC – premature atrial contraction
Pap – Papanicolaou smear
para 1, 2, 3 – unipara, bipara, tripara (number of viable births)
PAT – paroxysmal atrial tachycardia
pc, pp – after meals (postprandial)
PCL – posterior cruciate ligament
PCNL – percutaneous nephrolithotomy
PCO2 – partial pressure of carbon dioxide
PCP – Pneumocystis carinii pneumonia
PCV – packed cell volume
PDA – patent ductus arteriosus
PE – tube pressure-equalizing tube (placed in the eardrum)
PERRLA – pupils equal, round, and reactive to light and accommodation
PET – positron emission tomography
PFT – pulmonary function tests

PGH – pituitary growth hormone
pH – symbol for degree of acidity or alkalinity
PID – pelvic inflammatory disease
PMNL – polymorphonuclear leukocyte
PMP – previous menstrual period
PMS – premenstrual syndrome
PND – paroxysmal nocturnal dyspnea
po – by mouth (per os)
PO_2 – partial pressure of oxygen
poly, PMN – polymorphonuclear
post – posterior
PRL – prolactin
prn – as required
PSA – prostate-specific antigen
PT – prothrombin time, physical therapy
PTCA – percutaneous transluminal coronary angioplasty
PTH – parathyroid hormone; also called parathormone
PTT – partial thromboplastin time
PUD – peptic ulcer disease
PVC – premature ventricular contraction
q2h – every 2 hours
qam, qm – every morning
qd – every day
qh – every hour
qid – four times a day
qod – every other day
qpm, qn – every night

R – right; respiration; red
R/O – rule out
RA – rheumatoid arthritis
RAI – radioactive iodine
RAIU – radioactive iodine uptake
RBC, rbc – red blood cell, red blood count
RCA – right coronary artery
RD – respiratory distress
RDS – respiratory distress syndrome
RF – rheumatoid factor
RK – radial keratotomy
RLL – right lower lobe
RLQ – right lower quadrant
ROA – right occipital anterior
ROM – range of motion
ROP – right occipital posterior
RP – retrograde pyelography
RS – respiratory system
RSO – right salpingo-oophorectomy
rt – right
RUA – right upper arm
RUQ – right upper quadrant
RUQ – right upper quadrant
RV – residual volume; right ventricle
Rx – prescription

SA – sinoatrial
SaO_2 – arterial oxygen saturation
SD – shoulder disarticulation
segs – segmented neutrophils
SICS – small incision cataract surgery
SIDS – sudden infant death syndrome
SLE – systemic lupus erythematosus
SNS – sympathetic nervous system
SOB – shortness of breath
sono – sonogram
sp. gr. – specific gravity
SPECT – single photon emission computed tomography
ST – esotropia
stat – immediately
STD – sexually transmitted disease
Sub-Q, subQ – subcutaneous (injection)
Sx – symptom

T – temperature
T&A – tonsillectomy and adenoidectomy
T3 – triiodothyronine (thyroid hormone)
T4 – thyroxine (thyroid hormone)
TAH – total abdominal hysterectomy
TB – tuberculosis
TFT – thyroid function test
THA – total hip arthroplasty
THR – total hip replacement
TIA – transient ischemic attack

tid – three times a day
TKA – total knee arthroplasty
TKR – total knee replacement
TMJ – temporo mandibular joint
TPR – temperature, pulse, and respiration
TSE – testicular self-examination
TSH – thyroid-stimulating hormone
TURP – transurethral resection of the prostate (for prostatectomy)
TVH – total vaginal hysterectomy
Tx – treatment

U&L, U/L – upper and lower
UA – urinalysis
UC – uterine contractions
UGS – urogenital system
ung – ointment
URI – upper respiratory infection
US – ultrasound
USS – ultrasound scan

VA – visual acuity
VC – vital capacity
VCUG – voiding cystourethrography
VD – venereal disease
VF – visual field
VSD – ventricular septal defect
VT – ventricular tachycardia

WBC, wbc – white blood cell, white blood count

XP, XDP – xeroderma pigmentosum
XR – X-ray
XT – exotropia
YOB – year of birth

Dentistry

abs – abscess
ADA – American Dental Association
ADJ – adjustment
ASAP – as soon as possible
Adv – advanced
am or amal – amalgam
Anes – anesthetic (e.g., local anesthetic)
ant – anterior
Ant – anterior
Approx – approximately
Appt – appointment
ASA – anterior superior alveolar injection
ASA – acetylsalicylic acid or aspirin
ASA – anterior superior alveolar injection
ASAP – as soon as possible

B – buccal
B/U – build up
BWX – bitewings X-rays
Bid – twice a day
bilat – bilateral
BOP – bleeding on probing
BW – bitewing radiographs
BW or BWX – bitewings
C/C – (Complete/complete) complete maxillary denture and complete mandibular denture
C/C – Complete/Complete (Complete Maxillary Denture and Complete Mandibular Denture)
C/P – Complete maxillary denture and partial mandibular denture
C/P – Complete/Partial (Complete Maxillary Denture and Partial Mandibular Denture)
CAL – clinical attachment level
CaOH – calcium hydroxide
caps – capsules
carp – carpules
comp – composite
crn – crown
CDA – certified dental assistant
CDAEF – certified dental assistant expanded functions
COA – certified orthodontic assistant
CONS – consult
PCONS – partial consult
c̄ – With. From the Latin word “cum”

Cau – Caucasian
CC – Chief complaint
cc – Cubic centimeter
CEJ – cementoenamel junction
CHX – Chlorhexidine
comp – composite
Cont – continue, continued
COPD – chronic obstructive pulmonary disease
CP – cerebral palsy
CR – crown
CVA – cerebral vascular accident (stroke)

D – distal
DA – dental assistant
DCONS – denture consult
DDS – Doctor of Dental Surgery
DMD – Doctor of Medical Dentistry
Dx – diagnosis
D – distal
D/O – dental office
DA – dental assistant
DB – distobuccal
DC or D/C – discontinue
DH – dental hygienist or dental hygiene
DI – disto-incisal
DK – decay
DL – distolingual
DOB – date of birth
Dx – diagnosis

E.g. – for example
EA – each
EBV – Epstein Barr virus
ECG or EKG – electrocardiogram
Echo – echocardiogram
EIE – extraoral intraoral examination
Emer – emergency
endo # endodontic
EOB # estimate of benefits
epi # epinephrine

ER or ED – emergency room or emergency department
Eval – evaluation
EX – examination
EXT– extraction

F or Fa – facial
Fl, Fl2, F, F2 – Fluoride
FMR – full mouth radiographs
FMX – full mouth x-rays
hr – hour
HVE – high vacuum evacuation
FPD – fixed partial denture
Freq – frequent, frequency
fx off –- fractured off
Fx – fracture

ga – gage
Gen – general, generalized
GI – gastrointestinal
Ging – gingivitis, gingiva
GP– gutta percha

H_2O_2 – Hydrogen peroxide
HBP – high blood pressure, hypertension
Hg – Mercury
Hx – history

imp _ impression
Inc – incisal, incisive, incise
Inf – inferior
INS – insurance
irrig – irrigation
Irreg – irregular
I – incisal

L – lingual
LA – lower anterior
LL – lower left quadrant
Loc – local, localized, local anesthetic
LR – lower right quadrant

M – mesial
Med Hx – medical history
mand – mandibular
Marg – marginal
Max – maxillary or maximum
MB – mesiobuccal
Meds – medication
MHx – medical history
MID – mesial incisal distal
ML – mesiolingual
MO – mesioocclusal
Mo – month
MOD – mesio occluso distal
Mod – moderate
MSA – middle superior alveolar injection

N_2O – Nitrous Oxide
NaOci – Sodium Hypo-Chlorite (Bleach)
N/A, NA – not applicable
Nec – necessary
Neg – negative
NKA/NKDA – no known allergies/no known drug allergies
NP – new patient
NPO – nothing by mouth
NV – next visit

O – occlusal
OCONS – ORTHODONTIC CONSULT
Ortho – Orthodontics
OV – office visit
OCCS – occlusal guard seating
O, occ – occlusal
O_2 – Oxygen
OD – oral diagnosis
OH – oral hygiene
OHI – oral hygiene instructions
OP – operative
ORL – Otorhinolaryngology (or Otolaryngology)
OS – oral surgery
OTC – over the counter (drug that can be obtained without a prescription)

PA – periapical x-rays
pano – panoramic film
Porc – porcelain
PCN – penicillin
PFM – porcelain fused to metal
Perm – permanent
PP – paper point
Pstop – post op
P/P – partial/partial (partial maxillary denture and partial mandibular denture)
PA – periapical radiograph
Pano – panoramic radiograph
Path – pathology
PD – periodontal debridement
Perio – periodontal, periodontitis
PFM – porcelain fused to metal
PMT – periodontal maintenance therapy
PMT, PMTx – periodontal maintenance therapy or treatment
Post – posterior, after
Postop – after surgery
PPE – personal protective equipment such as gloves, mask, gown and eye protection
PRN, prn – as needed; as necessary
prophy or pro – prophylaxis
PSA – posterior superior alveolar injection
PSR – periodontal screening and recording
Pt, pt – patient
Px, PX, prog – prognosis
Qd – Every day
Qid – Four times a day
Quad – quadrant
Q – every
RBC – root canal/build-up/crown combination
RC – root canal
Rc – rubber cup
RCT – root canal therapy
RDH – registered dental hygienist
Rec – recession
Re-eval, reeval – re-evaluation, re-evaluate

Ref – referral
Reg – regular
RPD – removable partial denture
RT – re-cement temp
Rx – prescription

s̄ – without
SCONS – surgical consult
SC – seat crown
Septo – septocaine
SSC – stainless steel crown
sens – sensitive
Sig – write on label
SLD – seat lower denture
SLP – seat lower partial
Slt – slight
STAT – immediately
surg – surgery
SUD – seat upper denture
SUP – seat upper partial

tb – toothbrush
th – tooth
TMD – temporomandibular joint dysfunction or disorder
TMJ – temporomandibular joint
top – topical anesthetic
Tp – toothpaste
Tx – treatment

UL – upper left quadrant
UNK or unk – unknown
UR – upper right quadrant

w/ – with
w/o – without
WNL – within normal limits
Wt – weight

Xylo – xylocaine

y/o – year(s) old
Yr – year

SELF-CHECK KEYS

Unit 1

1) adenotomy; 2) adenology; 3) arthrotomy; 4) anencephaly; 5) endocardiac; 6) endogenic; 7) cardiogram; 8) cytology; 9) carditis; 10) cephalotomy; 11) pertaining to the skin; 12) surgical cutting of the stomach; 13) pertaining to the blood; 14) condition of blood in the joint; 15) disease of white blood cells; 16) pertaining to the kidney and heart; 17) inflammation of nerves; 18) science about diseases; 19) visual examination of the nose; 20) specialist in psychology (science about the mind).

Unit 2

1) adipoma; 2) chondrotomy; 3) dorsal; 4) histogenous; 5) lumbar; 6) myocardiopathy; 7) sacroiliac; 8) sacrotomy; 9) spondyloarthritis; 10) thoracic; 11) pertaining to across the chest; 12) surgical cutting of the abdomen; 13) originating from the internal organs; 14) disease of the muscles; 15) pertaining to the middle; 16) pertaining to the side; 17) pertaining to the neck; 18) pertaining to near the surface; 19) pertaining to the front; 20) pertaining to the back.

Unit 3

1) arteriole; 2) abdominoscopy; 3) carcinoma; 4) colostomy; 5) dactylomegaly; 6) hepatocyte; 7) hepatocele; 8) visceropexy; 9) hepatodynia; 10) hydropenia; 11) holding back urine; 12) puncture of the abdomen; 13) surgical cutting of the larynx; 14) development of stones; 15) pertaining to across the abdomen; 16) resembling mucus; 17) development of the bone marrow; 18) surgical cutting of the dead tissue; 19) surgical repair of the ear; 20) excessive growth.

Unit 4

1) adermia; 2) contralateral; 3) dystrophy; 4) hemiglossal; 5) polydactyly; 6) microcardia; 7) malformation; 8) microscope; 9) macrodactyly; 10) panatrophy; 11) insufficiency of all cells; 12) inflammation of many joints; 13) no capacity; 14) pertaining to after the inflammation of the brain; 15) false anemia; 16) secreting inside; 17) pertaining to under the tongue; 18) pertaining to above the kidneys; 19) pertaining to high sound; 20) condition of bones together (fusion of bones).

Unit 5

1) Condition of no appetite; 2) starch enzyme; 3) excessive sugar in blood; 4) stones in salivary glands; 5) pertaining to the mouth; 6) stoppage of bile; 7) pertaining to surrounding the esophagus; 8) bad condition of intestine; 9) surrounding contraction; 10) a specialist in the surrounding structures of teeth; 11) pharyngeal; 12) biligenesis; 13) lipoatrophy; 14) cholecystography; 15) odontalgia (dentalgia; odontodynia); 16) gastrocoloptosis; 17) gastroenterologist; 18) appendectomy; 19) hepatitis; 20) glossospasm.

Unit 6

1) Cheilotomy; 2) dentoalveolitis; 3) dentogenous; 4) alveolysis; 5) hypodontia; 6) odontolysis; 7) sublingual; 8) mental; 9) odontotomy; 10) cheiloschisis; 11) condition of large teeth;12) clefting of the jaw and palate;13) large tongue 14) specialist in prosthodontics; 15) pain in the jaw; 16) pertaining to enamel; 17) pertaining to between the teeth; 18) disease of the periodontial membrane; 19) cells producing cementum; 20) immature enamel cells.

Unit 7

1) Pertaining to many sacs containing fluid; 2) relating to the shape of bladder or cyst; 3) complete separation; 4) a record of the bladder and the urethra; 5) pertaining to inflammation of kidneys and renal pelvis; 6) pertaining to the visual examination of the bladder; 7) recording of the renal pelvis; 8) pertaining to glomeruli; 9) condition of water in kidneys; 10) pain in urethra; 11) meatal; 12) uroradiogram; 13) ketogenesis; 14) pyogenic; 15) anuria; 16) biliuria; 17) cystitis; 18) glomerular; 19) nephrolithotomy; 20) dysuria.

Unit 8

1) Bursting forth of blood from the uterus; 2) rupture of the cul-de-sac; 3) hidden menstruation; 4) inflammation with pus in the uterus; 5) condition of low function of the ovaries; 6) excessive function of the testis; 7) inflammation of vesicles and the prostate; 8) tumor of sperm cell; 9) removal of the ovaries and the uterus; 10) removal of the fallopian tubes and ovaries; 11) spermaturia; 12) vesiculitis; 13) myometrium; 14) cervicovaginitis; 15) vulvostenosis; 16) androphobia; 17) orchioma; 18) hypomenorrhea; 19)salpingorrhaphy; 20) culdocentesis.

Unit 9

1) pertaining to the pons and the medulla oblongata; 2) sensation of movement 3) visual examination of cerebral ventricles; 4) slight paralysis of vessels, 5) pertaining to the arm and the brain; 6) abnormal condition of incomplete development of spinal cord; 7) brain tumor; 8 surgical incision of the nerve; 9) located on the dura mater; 10) dermoneural; 11) neuropathogenesis, 12) neuropathogenesis; 13) kinesialgesia; 14) encephalomyocarditis; 15) meningocortical; 16) algesiogenic; 17) corticothalamic; 18) ganglioneuroma.

Unit 10

1) stone in the vein; 2) bad nourishment of the heart; 3) surgical repair of the aneurysm; 4) pertaining to the heart; 5) process of recording heart ventricles; 6) surgical cutting of veins; 7) condition of fat in the heart muscle; 8) excessive oxygen 9) pain in heart; 10) enlargement of the atrium, 11) hypertension; 12) valvostenosis; 13) myocardium, 14) phlebitis; 15) tachycardia; 16) arteriosclerosis, 17) hypoxia, 18) ventriculoscopy, 19) atherogenic, 20) vasoid.

Unit 11

1) pertaining to the lungs; 2) destruction of the pleura; 3) no sense of smell; 4) no oxygen; 5) seeing everything in blue; 6) difficult speech; 7) difficult eating; 8) spitting up blood; 9) inflammation of bronchioles; 10) narrowing of pharynx; 11) bronchopulmonary; 12) bronchoscope; 13) lobectomy; 14) lobectomy; 15) laryngitis; 16) pulmonoconiosis; 17) hyposmia; 18) bronchiolitis; 19) dyspnea; 20) hemothorax.

Unit 12

1) spherocytopenia; 2) agranulocytopoiesis; 3) phagocyte; 4) fibrinolysis; 5) polymorphonuclear; 6) sideropenia; 7) perithymic; 8) hemoglobin; 9) lymphadenectomy; 10) myelocentesis; 11) mmature platelet; 12) network cell; 13) cell condition of before bone marrow; 14) pertaining to small nucleus; 15) deficiency of all cells; 16) condition of single nucleus; 17) removal of plasma; 18) condition of deficient color; 19) condition of irregular cells; 20) pertaining to poison in WBC.

Unit 13

1) Formation of the cartilage; 2) pain in the vertebrae; 3) relating to the kneecap; 4) pertaining to the pubis; 5) abnormal condition of crooked humpback; 6) cutting of the tendon of a muscle; 7) process of diagnostic examination of a removed muscular tissue; 8) pertaining to the movement of muscles; 9) inflammation of surrounding bones (periosteum); 10) a cell of bones; 11) lumbar; 12) scoliosis; 13) diarticular (diarthric); 14) femorotibial; 15) dysesthesia; 16) sarcogenic; 17) polymyositis; 18) osteonecrotic; 19) osteologist; 20) osteoblast.

Unit 14

1) pus in the skin; 2) resembling epidermis; 3) abnormal condition of the horny layer; 4) pertaining to scales; 5) poisoning due to the ingestion of fungi; 6) abnormal condition of skin caused by dust; 7) flow of sebum; 8) pertaining to the condition of sweat; 9) fungi on the skin; 10) pain caused by a burn; 11) onychodystrophy; 12) hidradenitis; 13) hidropoiesis; 14) dermatoarthritis; 15) ungual; 16) dermatotome; 17) pachyonychia; 18) adipoplasty; 19) dermatomyositis; 20) erythroderma.

Unit 15

1) amblyesthesia; 2) dacryoadenolithiasis; 3) amblyocusis; 4) blepharoparesis; 5) cyclokinetic; 6) presbyacusis; 7) hyperkeratomalacia; 8) pharyngosalpingostomy; 9) tympanostapedoplasty; 10) xerosclerosis; 11) to turn outside; 12) pertaining to under the conjunctiva; 13) fear of light; 14)pertaining to inside the eye; 15) instrument for visual examination of the eye; 16) pertaining to hearing; 17) visual examination of the Eustachian tube; 18) instrument to measure the pupil; 19) record of hearing; 20) bad sound.

Unit 16

1) New formation of glucose; 2) getting rid of calcium; 3) pertaining to suprarenal cortex; 4) low function of sex glands; 5) no development of the thyroid gland; 6) relating to the treatment with sameness; 7) low function of the parathyroid glands; 8) low sodium in blood; 9) a tumor arising from immature cells in the pineal gland; 10) a cancerous tumor of adrenal glands; 11) adrenalectomy; 12) hyperglycemia; 13) thymoma; 14) cortical; 15) androgen; 16) adrenal (suprarenal); 17) somatasthenia; 18) somatesthetic; 19) etiology; 20) gonadectomy.

Unit 17

1) liposome; 2) karyolysis; 3) zymogenesis; 4) hyperchromatic; 5) retinoblastoma; 6) catabolism; 7) ribophilic; 8) pharmacophobia / chemophobia; 9) anabolism; 10) thymoncotomy; 11) pertaining to disease due to poison; 12) production of threads; 13) no sensation of cold; 14) cutting of tumour; 15) pertaining to killing seeds; 16) recording of poisons; 17) resembling cancer, 18) complete knowledge using rays; 19) pertaining to destruction of cancer; 20)disease caused by cold.

Unit 18

1) scintigraphy; 2) thermoscopic; 3) hyperfluorosis; 4) radiourology; 5) ventriculography; 6) ionic; 7) cineosonography; 8) anisoxerosis; 9) internephritis; 10) intraarterial; 11) specialist in rays; 12) pertaining to inside the vein; 13) dark rays; 14) process of recording of dryness; 15) treatment with movement; 16) record of sound; 17) instrument to record heat; 18) visual examination of luminosity; 19) record of lymph vessels; 20) treatment with light.

Unit 19

1) synergism; 2) toxemia; 3) antiseptic; 4) intramuscular; 5) antipyretic; 6) analgesia; 7) euphoria; 8) viricidal; 9) adrenergic; 10) anesthetic; 11) pertaining to numbness; 12) pertaining to sleep; 13) pertaining to against life, 14) pertaining to stopping of bacteria; 15) pertaining to destruction of disease together, 16) pertaining to copy disease together; 17) before protection; 18) condition of bad mixture; 19) pertaining to under skin; 20) study of drugs.

Unit 20

1) Relating to the production of tumors; 2) pertaining to against infection; 3) pertaining to against abnormal condition of life; 4) science about small lives; 5) fear of strangers; 6) resembling bacteria; 7) relating to the production of fever; 8) abnormal condition of bacteria; 9) the study of protozoa; 10) presence of pus in blood; 11) polymorphous; 12) bacteriology; 13) toxicopathy; 14) diplococci; 15) ontogenic; 16) mycoid; 17) bacteriemia; 18) mycocidal; 19) pyrostatic; 20) virology.

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