

**ZAPORIZHZHIA STATE MEDICAL UNIVERSITY**

**Department of Foreign Languages**

**ENGLISH FOR SPECIFIC PURPOSES**

**WORKBOOK**

**for 3<sup>rd</sup>-year Foreign Students**

**Specialty 222 «Medicine»**



**Zaporizhzhia**

**2020**

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*A workbook is approved and recommended for using in learning process  
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**Іноземна мова за професійним спрямуванням:** робочий зошит для студентів-іноземних громадян III курсу спец. 222 “Медицина” / О. Гордієнко, А. Неруш, Л. Сазанович, О.Мирошниченко, О. Соляненко. – Запоріжжя : ЗДМУ, 2020. – 83 с. – (англ.)

This workbook for self-study is recommended for 3<sup>rd</sup>-year foreign students of medical faculties. It contains tasks for individual work according to the discipline program “Foreign Language for Specific Purpose”. The aim of the workbook is to provide students with assignments and exercises on the themes according to the syllabus.

**Запорізький державний медичний університет**  
**Кафедра іноземних мов**

**РОБОЧИЙ ЗОШИТ**  
**для студентів-іноземних громадян III курсу**  
**спеціальності 222 “Медицина”**

**ПІБ** \_\_\_\_\_

\_\_\_\_\_

**курс** \_\_\_\_\_

**семестр** \_\_\_\_\_

**група** \_\_\_\_\_

**Запоріжжя**  
**2020**

**Запорожский государственный медицинский университет**

**Кафедра иностранных языков**

**РАБОЧАЯ ТЕТРАДЬ**

**для студентов-иностранных граждан**

**специальности 222 “Медицина”**

**ФИО** \_\_\_\_\_

\_\_\_\_\_

**курс** \_\_\_\_\_

**семестр** \_\_\_\_\_

**группа** \_\_\_\_\_

**Запорожье**

**2020**

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## INTRODUCTION

Understanding of terminology implies the knowledge of the regularities which shape and organize medical vocabulary. Without a clear notion of these regularities one may not be able to understand language successfully or structure it so as to make themselves understood.

“English in Medicine: Work Book” is intended for the 3-rd year students of medical universities who already have previous background in general English and have mastered the basics of medical English. It contains exercises as well as a wealth of other features and will provide an advanced look at medical terminology, reading practice. Students will achieve an accurate understanding of specific lexical issues that will both enhance their language skills and provide a solid grounding for further language study.

The contents of the Work Book fully corresponds to the aims and goals of the Working Program of discipline “Foreign Language for special purposes” (“Іноземна мова за професійним спрямуванням”) focused on the exam training for the state licensed exam “Krok I”.

The explanations and exercises come from an authentic e-sources fully presented in the online course “Refresher Course. Medicine (advanced level)”. The free materials have been selected and compiled according to the Working Program tasks by the editor of the Work Book.

The range of discussed topics encompasses Human Anatomy, The Central Nervous System, The Respiratory System, Cardiovascular System, The Gastrointestinal System, Endocrine System. The extensive base of tests is available for self-study training.

The materials of “English in Medicine: Work Book” can be both used in class and as additional practice.

**Индивидуальный график**

по дисциплине

**“Иностранный язык профессиональной сферы применения”**

***ZSMU: FOR\_M2\_CO1***

***Англійська мова за професійним спрямуванням (просунутий рівень)***

студента \_\_\_\_\_

3 курса \_\_\_\_\_ группы II міжнародного факультета

	Тема	Срок выполнения задания	Оцінка	Дата /ФИО преподавателя / подпись
1	Модуль 1-2			
2.	Модуль 3-4			
3.	Модуль 5-7			

**Індивідуальний графік**

з дисципліни

**“Іноземна мова за професійним спрямуванням”**

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	Тема	Термін виконання	Оцінка	Дата / П.І.Б. викладача / Підпис
1	Модуль 1-2			
2.	Модуль 3-4			
3.	Модуль 5-7			



**MODULE 1**  
**HUMAN ANATOMY**

**Revise Human Body Vocabulary Word List. Translate in written.**

<b>A</b>	<b>E cont.</b>	<b>L</b>	<b>S</b>
abdomen	endocrine system	larynx	sacrum
Adam's apple	esophagus	leg	scalp
adenoids	eye	ligament	scapula
adrenal gland	eyebrow	lip	senses
anatomy	eyelashes	liver	shin
ankle	eyelid	lobe	shoulder
anus	<b>F</b>	lumbar vertebrae	shoulder blade
appendix	face	lungs	skeleton
arch	fallopian tubes	lymph node	skin
arm	feet	<b>M</b>	skull
artery	femur	mandible	sole
<b>B</b>	fibula	metacarpal	spinal column
back	filling	metatarsal	spinal cord
ball of the foot	finger	molar	spine
belly	fingernail	mouth	spleen
belly button	follicle	muscle	sternum
big toe	foot	<b>N</b>	stomach
bladder	forehead	nail	<b>T</b>
blood	<b>G</b>	navel	tarsal
blood vessels	gallbladder	neck	teeth
body	glands	nerves	tendon
bone	groin	nipple	testes
brain	gums	nose	thigh

breast	<b>H</b>	nostril	thorax
buttocks	hair	<b>O</b>	throat
<b>C</b>	hand	organs	thumb
calf	head	ovary	thyroid
capillary	heart	<b>P</b>	tibia
carpal	heel	palm	tissue
cartilage	hip	pancreas	toe
cell	humerus	patella	toenail
cervical vertebrae	<b>I</b>	pelvis	tongue
cheek	immune system	phalanges	tonsils
chest	instep	pharynx	tooth
chin	index finger	pinky	torso
circulatory system	intestines	pituitary	trachea
clavicle	iris	pore	<b>U</b>
coccyx	<b>J</b>	pupil	ulna
collar bone	jaw	<b>R</b>	ureter
<b>D</b>	<b>K</b>	radius	urethra
diaphragm	kidney	rectum	urinary system
digestive system	knee	red blood cells	uterus
<b>E</b>		respiratory system	uvula
ear		ribs	<b>V</b>
ear lobe			vein
elbow			vertebra
			<b>W</b>
			waist
			white blood cells
			wrist

**ANSWER THE FOLLOWING QUESTIONS:**

1. This word starts with an "A." It is the part of the body between the leg and the foot. What is it? \_\_\_\_\_
2. This word starts with an "A." You have two of these. Each one bends in the middle and is above your waist. What is it? \_\_\_\_\_
3. This word starts with a "B." These hard things are inside your body and provide support for your body. What are they called? \_\_\_\_\_
4. This word starts with a "B." This part of your body controls the rest of your body; it also thinks. What is it? \_\_\_\_\_
5. This word starts with an "E." You have two of these on the sides of your head; they sense sounds. What are they? \_\_\_\_\_
6. This word starts with an "E." It is the part of your arm that bends. What is it?  
\_\_\_\_\_
7. This word starts with an "E." You have two of these on your face and you use them to see. What is it? \_\_\_\_\_
8. This word starts with an "F." It is the front of your head. What is it called?  
\_\_\_\_\_
9. This word starts with an "F." You have two of these. You stand on them. What are they? \_\_\_\_\_
10. This word starts with an "F." You have ten of these on your hands, and they are very sensitive to touch. What are they? \_\_\_\_\_
11. This word starts with an "H." We have these strands growing over most of our body (so do other mammals). A lot of it grows on the top of our head. What is it called? \_\_\_\_\_
12. This word starts with an "H." We have two of them, each one at the end of an arm. What are they? \_\_\_\_\_
13. This word starts with an "H." This organ pumps blood through the body. What is it called? \_\_\_\_\_

14. This word starts with an "H." It is the underside of the foot directly beneath the leg. What is it called? \_\_\_\_\_
15. This word starts with an "I." It is the part of the eye that is usually colored brown, blue, or green. What is it called? \_\_\_\_\_
16. This word starts with a "K." It is the part of the leg that bends. What is it?  
\_\_\_\_\_
17. This word starts with an "N." It is the part of the body between the head and the body. What is it called? \_\_\_\_\_
18. This word starts with an "N." It is the part of the body that senses smell. What is it? \_\_\_\_\_
19. This word starts with an "S." It is the part of the body that supports us. It is made up of over 200 bones. What is it called? \_\_\_\_\_
20. This word starts with an "S." It is the name of the major bones in the head. What is it called? \_\_\_\_\_
21. This word starts with a "T." We have ten of these. They are at the end of our feet and help us balance as we walk. What are they called? \_\_\_\_\_
22. This word starts with a "T." It is the name of the organ that senses taste. It also helps us eat and talk. What is it called? \_\_\_\_\_
23. This word starts with a "T." These things are used to bite and crush our food. What is one of these called? \_\_\_\_\_
24. This word starts with a "W." It is the part of the body between the hips and the chest. What is it called? \_\_\_\_\_
25. This word starts with an "X." We use this to take pictures of our bones. What is it called? \_\_\_\_\_

***Read the text “The Human Body: Anatomy, Facts & Functions” and fill in the gaps with the appropriate name of a body system:***

*Digestive system, immune system, muscular\_system, lymphatic\_system, reproductive\_system, skeletal\_system, endocrine\_system, respiratory\_system, urinary\_system, nervous\_system, integumentary\_system, circulatory\_system.*

## THE HUMAN BODY: ANATOMY, FACTS & FUNCTIONS

The human body is an amazing machine. Find out how it works from head to toe.

The basic parts of the human body are the head, neck, torso, arms and legs.

### Body systems

Our bodies consist of a number of biological systems that carry out specific functions necessary for everyday living.

The job of the \_\_\_\_\_ is to move blood, nutrients, oxygen, carbon dioxide, and hormones, around the body. It consists of the heart, blood, blood vessels, arteries and veins.

The \_\_\_\_\_ consists of a series of connected organs that together, allow the body to break down and absorb food, and remove waste. It includes the mouth, esophagus, stomach, small intestine, large intestine, rectum, and anus. The liver and pancreas also play a role in the digestive system because they produce digestive juices.

The \_\_\_\_\_ consists of eight major glands that secrete hormones into the blood. These hormones, in turn, travel to different tissues and regulate various bodily functions, such as metabolism, growth and sexual function.

The \_\_\_\_\_ is the body's defense against bacteria, viruses and other pathogens that may be harmful. It includes lymph nodes, the spleen, bone marrow, lymphocytes (including B-cells and T-cells), the thymus and leukocytes, which are white blood cells.

The \_\_\_\_\_ includes lymph nodes, lymph ducts and lymph vessels, and also plays a role in the body's defenses. Its main job is to make and move lymph, a clear fluid that contains white blood cells, which help the body fight infection. The lymphatic system also removes excess lymph fluid from bodily tissues, and returns it to the blood.

The \_\_\_\_\_ controls both voluntary action (like conscious movement) and involuntary actions (like breathing), and sends signals to different parts of the body. The central nervous system includes the brain and spinal cord. The peripheral

nervous system consists of nerves that connect every other part of the body to the central nervous system.

The body's \_\_\_\_\_ consists of about 650 muscles that aid in movement, blood flow and other bodily functions. There are three types of muscle: skeletal muscle which is connected to bone and helps with voluntary movement, smooth muscle which is found inside organs and helps to move substances through organs, and cardiac muscle which is found in the heart and helps pump blood.

The \_\_\_\_\_ allows humans to reproduce. The male reproductive system includes the penis and the testes, which produce sperm. The female reproductive system consists of the vagina, the uterus and the ovaries, which produce eggs. During conception, a sperm cell fuses with an egg cell, which creates a fertilized egg that implants and grows in the uterus.

Our bodies are supported by the \_\_\_\_\_ which consists of 206 bones that are connected by tendons, ligaments and cartilage. The skeleton not only helps us move, but it's also involved in the production of blood cells and the storage of calcium. The teeth are also part of the skeletal system, but they aren't considered bones.

The \_\_\_\_\_ allows us to take in vital oxygen and expel carbon dioxide in a process we call breathing. It consists mainly of the trachea, the diaphragm and the lungs.

The \_\_\_\_\_ helps eliminate a waste product called urea from the body, which is produced when certain foods are broken down. The whole system includes two kidneys, two ureters, the bladder, two sphincter muscles and the urethra. Urine produced by the kidneys travels down the ureters to the bladder, and exits the body through the urethra.

The skin, or \_\_\_\_\_ is the body's largest organ. It protects us from the outside world, and is our first defense against bacteria, viruses and other pathogens. Our skin also helps regulate body temperature and eliminate waste through perspiration. In addition to skin, the integumentary system includes hair and nails.

**Read the text “VITAL ORGANS”.**

**Find up the corresponding notions in the sentence.**

### VITAL ORGANS

Humans have five vital organs that are essential for survival. These are the brain, heart, kidneys, liver and lungs.

<p>The _____ are responsible for removing oxygen from the air we breathe and transferring it to our blood where it can be sent to our cells. The lungs also remove carbon dioxide, which we exhale.</p>	<p><i>human_heart</i></p>
<p>The _____ is a responsible for pumping blood throughout our body.</p>	<p><i>human_brain</i></p>
<p>The _____ has many functions, including detoxifying of harmful chemicals, breakdown of drugs, filtering of blood, secretion of bile and production of blood-clotting proteins.</p>	<p><i>kidneys</i></p>
<p>The _____ is the body's control center, receiving and sending signals to other organs through the nervous system and through secreted hormones. It is responsible for our thoughts, feelings, memory storage and general perception of the world.</p>	<p><i>lungs</i></p>

<p>The job of the _____ is to remove waste and extra fluid from the blood. The kidneys take urea out of the blood and combine it with water and other substances to make urine.</p>	<p><i>liver</i></p>
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*You are going to read “Fun facts” about human anatomy after having inserted the necessary word combination with numeral:*

*200, 50 percent, 100 trillion, 20,000, quarter and a half, 10 times, 100 billion.*

### **FUN FACTS**

- The human body contains nearly \_\_\_\_\_ cells.
- There are at least \_\_\_\_\_ as many bacteria in the human body as cells.
- The average adult takes over \_\_\_\_\_ breaths a day.
- Each day, the kidneys process about \_\_\_\_\_ quarts (50 gallons) of blood to filter out about 2 quarts of waste and water
- Adults excrete about a \_\_\_\_\_ (1.42 liters) of urine each day.
- The human brain contains about \_\_\_\_\_ nerve cells
- Water makes up more than \_\_\_\_\_ of the average adult's body weight.



**Module 2**  
**THE CENTRAL NERVOUS SYSTEM**

*Vocabulary*

**Revise Human Body Vocabulary Word List. Translate in written.**

<p><b>A</b></p> <p>abnormal electrical discharges from brain cells</p> <p>acromegaly</p> <p>affect movement</p> <p>Alzheimer's disease</p> <p>astrocytes</p> <p>auditory and visual responses</p> <p>autism</p> <p>autistic people</p> <p>autonomic nervous system</p> <p>axon</p> <p><b>B</b></p> <p>brain</p> <p>brainstem</p> <p>bundle of nerve fibers</p> <p><b>C</b></p> <p>carotid artery disease</p> <p>catalepsy</p> <p>central nervous system</p> <p>cerebrospinal fluid</p> <p>cerebrum</p> <p>cerebellum</p>	<p><b>I</b></p> <p>impact mental functions</p> <p>interneuron</p> <p><b>L</b></p> <p>Lou Gehrig's disease</p> <p><b>M</b></p> <p>magnetic resonance imaging</p> <p>maintain balance and equilibrium</p> <p>maintain movement and coordination</p> <p>mater arachnoid</p> <p>mater dura</p> <p>mater pia</p> <p>measure cell or tissue metabolism</p> <p>medulla oblongata</p> <p>meninges</p> <p>meningitis</p> <p>microgliaocytes</p> <p>midbrain</p> <p>migraine</p> <p>monitor and coordinate internal organ function</p> <p>motor function</p> <p>motor neuron</p>
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chronic fatigue syndrom	multiple sclerosis
cluster headache	<b>N</b>
computed tomography	nerve-related pain
computed tomography scan	neural ganglia
conditions involving the nervous system	neurological examination
conduct and transmit signals	<b>O</b>
control autonomic function	oligodendrocytes
convey signals	<b>P</b>
cranial nervous system	Parkinson's disease
<b>D</b>	pituitary gland
dendrite	phenomenon of memory
drain a small amount of cerebral spinal fluid	phenylketonuria
<b>E</b>	positron emission tomography
electroencephalogram	presynaptic membrane
encephalon	process and interpret sensory information
encephalitis	processing center
ependimal cells	progressive nerve disease
epilepsy	<b>R</b>
experience functional difficulties	receive and send information
<b>F</b>	record the brain's continuous electrical activity
forebrain	<b>S</b>
frontal lobe	seizure
<b>G</b>	sensory neuron
glial cells	spinal column
gyrus	spinal cord
<b>H</b>	stroke
hemisphere	support, feed and insulate the neurons
hindbrain	<b>T</b>

hippocampus	Tay-Sachs disease
Huntington's disease	temporal lobe
hypothalamus	tension-type headache
	test cerebral spinal fluid for infection or other abnormalities
	thalamus
	Tourette's syndrome
	tremor
	<b>V</b>
	vertebral cortex
	<b>W</b>
	Wilson disease

## READING

**1. Without looking back at the text “Central Nervous System” (online course), mark the following statements T (true) or F (false):**

- a. The nervous system is responsible for sending, receiving, and interpreting information from all parts of the body.
- b. The central nervous system receives information from and sends information to the peripheral nervous system.
- c. Both the brain and spinal cord are protected by three layers of connective tissue called the meninges.
- d. The brain consists of two main components: the forebrain, and the brainstem.
- e. The forebrain is responsible for a variety of functions including receiving and processing sensory information, thinking, perceiving, producing and understanding language, and controlling motor function.
- f. The midbrain is the portion of the brainstem that connects the hindbrain and the forehead.

- g. The hindbrain also contains the medulla oblongata which is responsible for inhibiting such autonomic functions as breathing, heart rate, and digestion. [\_\_\_\_\_]
- h. Neurons are not the basic unit of the nervous system, but all cells of the nervous system are comprised of neurons. [\_\_\_\_\_]
- i. Neurons are classified as either motor, sensory, or interneurons. [\_\_\_\_\_]
- j. Motor neurons carry information from the central nervous system to organs, glands, and muscles. [\_\_\_\_\_]

## GRAMMAR

**1. Study online course, read the following piece of information and complete the missing articles: *a, the, zero article*.**

In 1848, \_\_\_\_\_ accidental explosion drove \_\_\_\_\_ metal bar completely through \_\_\_\_\_ frontal lobes of Phineas P. Gage. Not only did he survive \_\_\_\_\_ accident, he never even lost \_\_\_\_\_ consciousness or any of the clearly-defined functions of \_\_\_\_\_ brain. However, he underwent a marked change in personality. Formerly described as \_\_\_\_\_ reasonable, sober, conscientious person, he became "thoughtless, irresponsible, fitful, obstinate, and profane". In \_\_\_\_\_ short, his personality had changed, but his vision, hearing, other sensations, speech, and body coordination were unimpaired. (Similar personality changes have since been often observed in people with injuries to their prefrontal cortex.)

**2. Study online course, learn more about the CNS. Complete the sentences with the proper forms of an adjective: *positive, comparative, superlative form*.**

- a) The size of your brains does not reflect your intelligence - after all Einstein's brain was no \_\_\_\_\_ (large) than the average person.
- b) It will take \_\_\_\_\_ (little) than one second for information to travel along your nerves.

- c) The forebrain also contains the \_\_\_\_\_ ( large) part of the brain, the cerebrum.
- d) Dendrites are usually \_\_\_\_\_. (numerous, short and branched) than axons.
- e) Axons are \_\_\_\_\_ (long) nerve processes that may branch out to convey signals to various areas.
- f) The messages between your brain cells and the rest of the body are carried by electricity - but only \_\_\_\_\_ (tiny) amounts.

***Read the text about the CNS diseases and conditions. Complete the table.***

There are many central nervous system diseases and conditions, including infections of the central nervous system such as encephalitis and poliomyelitis, early-onset neurological disorders including ADHD and autism, late-onset neurodegenerative diseases such as Alzheimer's disease, Parkinson's disease, and essential tremor, autoimmune and inflammatory diseases such as multiple sclerosis and acute disseminated encephalomyelitis, genetic disorders such as Krabbe's disease and Huntington's disease, as well as amyotrophic lateral sclerosis and adrenoleukodystrophy. Lastly, cancers of the central nervous system can cause severe illness and, when malignant, can have very high mortality rates. “Of all the diseases of the nervous system, the most common difficulty that people have is pain, and much of that is nerve-related,” according to Dr. Shai Gozani, founder and CEO of NeuroMetrix, a medical device company. “There are 100 million people who live with chronic pain.” According to the Mayo Clinic, patients with nerve disorders experience functional difficulties, which result in conditions such as: Epilepsy, in which abnormal electrical discharges from brain cells cause seizures Parkinson's disease, which is a progressive nerve disease that affects movement Multiple sclerosis (MS), in which the protective lining of the nerves is attacked by the body's immune system Amyotrophic lateral sclerosis (ALS), also known as Lou Gehrig's disease, is a motor neuron disease which weakens the muscles and progressively hampers physical

function Huntington's disease, which is an inherited condition that cause the nerve cells in the brain to degenerate Alzheimer's disease, which covers a wide range of disorders that impacts mental functions, particularly memory.

Disease	Description	Diagnosing

***Feedback: take a test to check yourself***

**1.** Our body is a complex organism that works with the cooperation of different systems, including circulatory system, digestive system, endocrine system, immune system, lymphatic system, muscular system, reproductive system, respiratory system, urinary system, skeletal system and nervous system, among which there include central nervous system that ... .

- a) helps people to do their problems
- b) helps people to find the solution
- c) helps towards the attainment of an end
- d) helps people over in their trouble
- e) helps all the parts of the body to communicate with each other

**2.** Your brain is like the ... of your body. It has different components that play different roles.

- a) control center
- b) disarmament control
- c) test control
- d) control exercise
- e) disease control

**3.** The forebrain receives and processes sensory information; it also handles other functions, including ... and controlling motor function.

- a) perceiving, thinking and understanding language
- b) introducing the language of science
- c) appreciating fine language
- d) mastering finger language
- e) avoiding strong language

**4.** It has different structures too, including the hypothalamus and the thalamus, both of which ... different functions such as sensory information relay, motor control and autonomic functions control.

- a) management    b) manager    c) manage    d) managing    e) managed

**5.** Midbrain is basically the portion that forms a ... between the forebrain and the hindbrain; the region manages your visual and auditory responses, as well as motor function.

- a) connect    b) connection    c) connected    d) connective    e) connectively

**6.** Extending from the spinal cord, the hindbrain ... structures such as the cerebellum and pons.

- a) maintains    b) sustains    c) pertains    d) contains    e) obtains

**7.** Connected to the brain, spinal cord is a cylindrical shaped group of nerve fibers and ... your spinal column that extends from your neck and goes all the way down to your lower back.

- a) runs about    b) runs away    c) runs back    d) runs with    e) runs down

**8.** Your nervous system has cells comprised of neurons that contain nerve processes, and each of them has axons and dendrites that can ... signals.

- a) read and translate    b) manage and control    c) hear and see    d) transmit and conduct    e) catch and response

**9.** Axons are long nerve processes that carry signals away from the cell body, whereas dendrites are shorter than axons and carry signals ... the cell body.

- a) toward    b) across    c) among    d) behind    e) between

**10.** An adult has ... 75 km of nerves in their body, enough to stretch over 185 times around an Olympic running track.



a) any      b) some      c) these      d) those      e) its

**11.** The average ... of your spinal cord is about 19 inches and it contains about 13,500,000 neurons. The communication between the brain and other parts of the body is carried out through the spinal cord.

a) long      b) wide      c) deep      d) length      e) depth

**12.** The average weight of an adult male brain is 1375 g, but it is ... for women and weighs around 1275 g only.

a) light      b) lighter      c) the lighter      d) lightest      e) the lightest

**13.** The nervous system can transmit nerve impulses ... fast ... 100 meters per second, and in some cases, the speed of transmission is around 180 miles per hour.

a) as ... as      b) both ... and      c) either ... or      d) neither ... nor  
e) not only ... but also

**14.** A newborn's brain grows three times within the first year after birth. Your brain loses a gram every year, as you ... .

a) grow in size      b) grow in price      c) grow in experience      d) grow old  
e) grow into a man (or a beautiful woman)

**15.** A man's brain has 6.5 times more gray matter as compared to ... , but a ... brain has 10 times more white matter as compared to men.

a) woman ... woman's      b) women ... men      c) women ... woman's  
d) woman's ... man's      e) man's ... women

**16.** ... more than 4% of your brain cells are used for most of the tasks.

a) no      b) some      c) any      d) something      e) anything

**17.** Neurons grow at the rate of 250,000 neurons a minute in a child inside the ...

- a) woman      b) work      c) wonder      d) womb      e) wood

**18.** Nerves can be damaged by injury or disease and result in ... and loss of function in certain parts of your body.

- a) severe look      b) severe pain      c) severe reprimand      d) severe distress  
e) severe nervous outbreak

**19.** Many cases of ... from strokes, brain tumors, mechanical damages (e.g. bullet wounds) have provided important insights into the functions of various parts of the brain.

- a) brain damage      b) brain storm      c) brain attack      d) brain power  
e) brain cortex

**20.** The area of motor cortex ... a body part is not proportional to the size of that part but is proportional to the number of motor neurons running to it.

- a) control      b) controlling      c) controlled      d) controls      e) to control

**21.** ... motor neurons that activate a structure, ... precisely it can be controlled.

- a) the most ... the most      b) the most ... the more      c) the more ... the most  
d) the more ... the more      e) the more ... the less

**22.** Thus the areas of the motor cortex controlling the hands and lips are ... than those controlling the muscles of the torso and legs.

- a) many large      b) many larger      c) much larger      d) more large      e) more larger

**23.** When portions of the occipital lobe are stimulated ..., the patient reports light.

- a) electrically      b) biologically      c) chemically      d) naturally      e) greatly

**24.** Damage to regions in the occipital lobe results in the person's being perfectly able to see objects but ... of recognizing them.

- a) incalculable    b) incapable    c) incontestable    d) inclinable    e) incompatible

**25.** The centers of hearing and understanding what is heard ... in the temporal lobes.

- a) locate    b) located    c) are located    d) have been located    e) locating

**26.** Stroke is the sudden interruption of blood flow ... a part of the brain that kills brain cells within the area.

- a) to    b) from    c) between    d) behind    e) in

**27.** Strokes typically ... with the sudden onset of focal neurologic deficits, such as weakness, sensory deficit, or difficulties with language.

- a) manifested    b) manifests    c) are manifesting    d) manifest  
e) were manifested

**28.** The result of stroke is that body functions ... by the affected area may be impaired or lost.

- a) controlling    b) controlled    c) are controlled    d) are controlling    e) control

**29.** Penumbra is an area of brain cells ... the initial site of brain damage from stroke.

- a) surround    b) surrounded    c) is surrounding    d) is surrounded  
e) surrounding

**30.** The brain cells in the penumbra ... by ischemic injury, but not irreversibly damaged.

- a) are threatening    b) threatened    c) are threatened    d) threatening

e) threaten

**31.** Compensation is the ability of an individual with impairments from stroke ... a task either using the impaired limb with an adapted (different) approach or using the unaffected limb.

a) performing b) to perform c) performs d) performed e) is performed

**32.** Continence is ... ability to control ... bodily functions, especially urinary bladder and bowel functions.

a) the ... - b) an ... the c) - ... the d) an ... - e) - ... -

**33.** Functional limitation is a reduced ability or lack of ability to perform an action or activity in the manner or ... the range considered to be normal.

a) with b) in c) within d) between e) without

**34.** Autism ... in varying degrees by difficulties in social interaction, verbal and nonverbal communications and repetitive behaviors.

a) has characterized b) is characterized c) characterizing d) characterized  
e) is characterizing

**35.** Autism ... its roots in very early brain development.

a) is reported to be b) is expected to have c) is thought to be d) appears to have  
e) seems to be

**36.** ... obvious signs of autism and its symptoms tend to emerge between 2 and 3 years of age.

a) much b) the more c) most d) most e) the most

**37.** Autism Spectrum Disease ... be associated with intellectual disability, difficulties in motor coordination and attention and physical health issues such as sleep and gastrointestinal disturbances.

- a) might    b) has to    c) can    d) must    e) should

**38.** Seventy years after Leo Kanner first described “infantile autism”, national awareness ... still ... mainly on children with autism spectrum disorder.

- a) is ... focused    b) is ... focusing    c) has ... focused  
d) has ... been focused    e) has ... been focusing

**39.** The hardest part about autism is ... what treatments and therapies your child could benefit from and not having the financial resources to get him the help.

- a) know    b) knew    c) known    d) knowing    e) to know

**40.** Phenylketonuria is an inborn error of metabolism ... impaired metabolism of the amino acid phenylalanine.

- a) to involve    b) involve    c) involving    d) involved    e) involves

**41.** Phenylketonuria ... by absent or virtually absent phenylalanine hydroxylase enzyme activity.

- a) causes    b) caused    c) causing    d) is caused    e) is causing

**42.** Emotional lability is instability or change of the emotions; in stroke survivors, it ... the form of inappropriate laughing or crying for no obvious reason.

- a) takes    b) took    c) taken    d) is taken    e) is taking

**43.** ... CT scanning routinely used to quickly diagnose strokes.

- a) has    b) is    c) does    d) had    e) did

**44.** The electroencephalograph ... electrical activity (“brain waves”) that can be detected at the surface of the scalp.

- a) measuring    b) measured    c) measures    d) is measured  
e) will be measured

**45.** Doctors at a hospital in Brooklyn New York have gone on strike – hospital officials say they will find out what the doctor’s demands are as soon as they can get a ... to read the picket signs!

- a) pharmacist    b) microbiologist    c) anatomist    d) physiologist  
e) ophthalmologist

**46.** Scientists ... still ... mental telepathy, and most scientists do not believe that it exists.

- a) are ... studied    b) have ... studied    c) have ... been studied  
d) had ... been studying    e) are ... studying

**47.** An increasing number of experts believe that the ... of connections between the left and right parts of the brain may be the starting point for human genius.

- a) badness    b) darkness    c) weakness    d) richness    e) brightness

**48.** Babies do it for up to eighteen hours a day; Napoleon and Mrs Thatcher both said they only ... to do it three or four hours a night.

- a) need    b) needing    c) needed    d) were needed    e) would need

**49.** Rodin’s The Thinker may do it sitting down; Sir Winston Churchill did it in the bath smoking a cigar; but researchers now believe that lying down is the best way ...

- a) to eat    b) to work    c) to enjoy    d) to sleep    e) to think

**50.** The brain is a wonderful organ; it starts working the moment you get up in the morning, and ... until you get into the office (R.Frost).

- a) does not stop    b) isn't stopping    c) hasn't stopped    d) isn't stopped  
e) non stop

**Module 3**  
**THE RESPIRATORY SYSTEM**

*Vocabulary*

**Revise Human Body Vocabulary Word List. Translate in written.**

respiratory system	air sac
respiration	alveole, alveoli
oxygen	invertebrates
carbon dioxide	gill
lung	intercostals
inhalation	stomata
exhalation	pectoral
to expel	ribcage
air-breathing vertebrates	
trachea	
bronchus, bronchi	
bronchiole	
diaphragm	

**1. Study the online course. Without looking back the text “*Respiratory System*”, read the statements, mark T (true) or F (false).**

1. The respiratory system is involved in the intake and exchange of oxygen and carbon dioxide between an organism and the environment.

[\_\_\_\_\_]

2. The passage of air into the lungs to supply the body with oxygen is known as inhalation, and the passage of air out of the lungs to expel carbon dioxide is known as exhalation. [\_\_\_\_\_]

3. In humans and other mammals, the anatomical features of the respiratory system include trachea, bronchi, lungs, and diaphragm. [\_\_\_\_\_]



4. The lungs have a natural flexibility. [\_\_\_\_\_]
5. During vigorous inhalation (at rates exceeding 35 breaths per minute), or in approaching respiratory failure, intercostal muscles of respiration are recruited for support. [\_\_\_\_\_]
6. Normal resting respirations are 10 to 18 breaths per minute, with a time period of 2 seconds. [\_\_\_\_\_]
7. During forced exhalation, as when blowing out a candle, expiratory muscles including the abdominal muscles and internal intercostal muscles. [\_\_\_\_\_]
9. Pectoral muscles and platysma are also accessory muscles.
10. Inhalation is initiated by the diaphragm and supported by the internal intercostal muscles. [\_\_\_\_\_]

**2. Without looking back to the text “*Respiratory System*”, read the statements, mark T (true) or F(false).**

1. Cancer can be alleviated or somewhat changed by adopting different methods of breathing.[\_\_\_\_\_]
2. Breathing isn’t as much about bringing in carbon dioxide as it is about pushing out oxygen. [\_\_\_\_\_]
3. When you begin to hyperventilate, you might become very weak and your body will certainly become more acidic in the tissues.[\_\_\_\_\_]
4. The nose filters air through four distinct stages.[\_\_\_\_\_]
5. It is natural to change sleeping position every 10 minutes.[\_\_\_\_\_]
6. A newborn breathes between 30 and 60 times per minute.[\_\_\_\_\_]
7. Children who breathe through their nose are more likely to develop a lisp.[\_\_\_\_\_]
8. Over time, breathing through the mouth can lead to shrinkage of your jaw.[\_\_\_\_\_]
9. When you breathe with your mouth open at night, your bladder tends to shrink.[\_\_\_\_\_]

10. When you breathe through your mouth, you pass different filter stages. [\_\_\_\_\_]

**3. Translate following sentences into Russian:**

1. Primary function of lungs is to transport oxygen.

\_\_\_\_\_

2. Take a deep breath!

\_\_\_\_\_

3. You should breathe in and breathe out.

\_\_\_\_\_

4. Most veritable animals have two lungs.

\_\_\_\_\_

5. Some children lisp because they breathe through the mouth.

\_\_\_\_\_

6. Different ways of breathing can cause asthma.

\_\_\_\_\_

7. Asthma is a common disease and it affects lungs.

\_\_\_\_\_

8. Do you know what can cause asthma attacks?

\_\_\_\_\_

9. Lung diseases are quite common in the industrial regions.

\_\_\_\_\_

10. An average person breathes in around 11,000 litres of air every day.

\_\_\_\_\_

**4. Translate following sentences into Russian/ Ukrainian:**

1. This disease cannot affect the quality of life.

\_\_\_\_\_

2. Some people have only one lung.

\_\_\_\_\_

3. The study of lung diseases is known as pulmonology.

---

4. Some babies require “lung float test” before the birth.

---

5. Pneumonia is a dangerous disease that makes it harder for your lungs to absorb oxygen from the air you breathe.

---

6. People who have a large lung capacity can send oxygen around their body faster.

---

7. It is amazing that you can increase your lung capacity with the help of regular exercises.

---

8. Except of asthma lung diseases include emphysema, tuberculosis and bronchitis.

---

9. Your left and right lungs aren't exactly the same.

---

10. When humans breathe in or inhale, the lungs expand.

---

## GRAMMAR

### Exercise 1. Form the *sentences into Passive Voice*.

1. Breathing \_\_\_\_\_ (to control) by a respiratory center in the brain stem.

2. This phase \_\_\_\_\_ (to call) inspiration or inhalation.

3. Influenza \_\_\_\_\_ (to cause) either by virus or bacteria

4. Flu \_\_\_\_\_ (to confuse) with a cold.
5. Blood \_\_\_\_\_ (to pass) through pulmonary capillaries and \_\_\_\_\_ (to enter) pulmonary veins.

**Exercise 2. Write the appropriate form of the verb “to do”.**

1. The report \_\_\_\_\_ at the moment.
2. The scientific article \_\_\_\_\_ by 2 o'clock tomorrow.
3. The investigation \_\_\_\_\_ by the time you come home.
4. The work \_\_\_\_\_ by the time he came home.
5. The work \_\_\_\_\_ yet.
6. The report \_\_\_\_\_ just \_\_\_\_\_.
7. The work \_\_\_\_\_ while I was getting ready for module.
8. The investigation \_\_\_\_\_ two weeks later.
9. The work \_\_\_\_\_ when I entered the room.
10. The work \_\_\_\_\_ yesterday at five.

**MODULE 4**  
**CARDIOVASCULAR SYSTEM**

**Vocabulary**

**Revise Cardiovascular System Vocabulary Word List. Translate in written.**

- |                               |                               |
|-------------------------------|-------------------------------|
| 1. <b>Abundant</b> _____      | 25. Evident _____             |
| 2. Aggravating _____          | 26. Exacerbate _____          |
| 3. <b>Aid</b> _____           | 27. High blood pressure _____ |
| 4. Angioplasty _____          | 28. <b>Identifier</b> _____   |
| 5. <b>Approximately</b> _____ | 29. Intermittent _____        |
| 6. <b>Average</b> _____       | 30. <b>Inward</b> _____       |
| 7. <b>Bind</b> _____          | 31. Issue _____               |
| 8. Burning _____              | 32. <b>Maintain</b> _____     |
| 9. Bypass _____               | 33. <b>Merge</b> _____        |
| 10. <b>Chamber</b> _____      | 34. <b>Nourishing</b> _____   |
| 11. Clarity _____             | 35. <b>Oxygenated</b> _____   |
| 12. Collateral _____          | 36. Painkillers _____         |
| 13. Confirm _____             | 37. Peacemaker _____          |
| 14. Constant _____            | 38. <b>Platelet</b> _____     |
| 15. <b>Death</b> _____        | 39. Pounding _____            |
| 16. Deciliter _____           | 40. Precipitating _____       |
| 17. <b>Decrease</b> _____     | 41. Predisposing _____        |
| 18. <b>Descend</b> _____      | 42. <b>Prevent</b> _____      |
| 19. Detect _____              | 43. <b>Pump</b> _____         |
| 20. <b>Diastolic</b> _____    | 44. Reasoning _____           |
| 21. <b>Diffuse</b> _____      | 45. Referral _____            |
| 22. Dilation _____            | 46. Relevant _____            |
| 23. Disrupting _____          | 47. <b>Removal</b> _____      |
| 24. Divide _____              | 48. <b>Sickle</b> _____       |

49. Significance \_\_\_\_\_

55. Sustaining \_\_\_\_\_

50. Spine \_\_\_\_\_

56. Throbbing \_\_\_\_\_

51. Split \_\_\_\_\_

57. Valve \_\_\_\_\_

52. Stabbing \_\_\_\_\_

58. Ventricle \_\_\_\_\_

53. Stroke \_\_\_\_\_

59. Vessel \_\_\_\_\_

54. Supply \_\_\_\_\_

60. Weight \_\_\_\_\_

**Read, translate and remember medical abbreviations:*****MEDICAL ABBREVIATIONS****2D* Two dimensional \_\_\_\_\_*3/52* Three weeks \_\_\_\_\_*3/7* Three days \_\_\_\_\_*3D* Three dimensional \_\_\_\_\_*AAA* Abdominal aortic aneurysm \_\_\_\_\_*ACE* Angiotensin converting enzyme \_\_\_\_\_*BP* Blood pressure \_\_\_\_\_*CAD* Coronary artery disease \_\_\_\_\_*CI* Cardiac index \_\_\_\_\_*CNS* Central Nervous System \_\_\_\_\_*CSF* Cerebrospinal fluid \_\_\_\_\_*CT* Cerebral tumour, coronary thrombosis \_\_\_\_\_*CT* Computed tomography \_\_\_\_\_*CTCA* Computed tomography coronary angiography \_\_\_\_\_

<i>CVS</i>	Cardiovascular system_____
<i>dL</i>	Deciliter_____
<i>ENT</i>	Ear, Nose, Throat_____
<i>FLAIR</i>	Fluid attenuated inversion recovery_____
<i>GIS</i>	Gastro-intestinal system_____
<i>GUS</i>	Genito-urinary system_____
<i>HR</i>	Heart rate_____
<i>HS</i>	Heart Sounds_____
<i>ICU</i>	Intensive care unit_____
<i>IV</i>	Intravenous_____
<i>IVC</i>	Inferior vena cava_____
<i>IVMP</i>	Intravenous <i>methylprednisolone</i> _____
<i>LA</i>	Left anterior descending artery_____
<i>LCx</i>	Left circumflex artery_____
<i>LV</i>	Left ventricle_____
<i>LVA<sub>n</sub></i>	Left ventricular apical aneurysm_____
<i>LVFWR</i>	Left ventricular free wall rupture_____
<i>LVP</i>	Left ventricular pseudoaneurysm_____
<i>MG</i>	Myasthenia gravis_____
<i>MI</i>	Myocardial infarction_____
<i>MRA</i>	Magnetic resonance of arteriography_____
<i>MRI</i>	Magnetic resonance_____
<i>MRI</i>	Magnetic resonance imaging_____
<i>MRI</i>	Magnetic resonance imaging_____

<i>MRI</i> s	Magnetic resonance_____
<i>MRV</i>	Magnetic resonance of venography_____
<i>NAD</i>	Nothing abnormal detected_____
<i>NM</i>	Nuclear medicine_____
<i>NYHA</i>	New York Heart Association_____
<i>O/E</i>	On examination_____
<i>P</i>	Pulse_____
<i>PAP</i>	Pulmonary arterial pressure_____
<i>PCWP</i>	Pulmonary capillary wedge pressure_____
<i>Pseudoan</i>	Preudoaneurysm_____
<i>RA</i>	Right atrium_____
<i>RIJ</i>	The right internal jugular vein_____
<i>RNP</i>	Positive antiribonuclear_____
<i>RNP</i>	Ribonucleoprotein_____
<i>RR</i>	Respiratory rate_____
<i>RS</i>	Respiratory system_____
<i>RV</i>	Right ventricle_____
<i>S3</i>	Third sound_____
<i>SPECT</i>	Single-photon emission computed tomography_____
<i>SVR</i>	Stable viral response_____
<i>TEE</i>	Transesophageal echocardiogram_____



**Grammar**

**Study Grammar in the online course, use the appropriate form of the infinitive.**

1. They want their son (*to examine*) \_\_\_\_\_ by the doctor.
2. You ought (*to take care*) \_\_\_\_\_ of your health.
3. He wants his son (*to become*) \_\_\_\_\_ a dentist.
4. Our plan was (*to introduce*) \_\_\_\_\_ new methods of research.
5. They must (*to continue*) \_\_\_\_\_ their experiment.
6. (*to make*) \_\_\_\_\_ a choice between these two methods was quite difficult.
7. The conference (*to be hold*) \_\_\_\_\_ tomorrow will be devoted to a dramatic breakthrough in surgery.
8. He is not sure that it can (*to do*) \_\_\_\_\_ , but he is willing (*to try*) \_\_\_\_\_.
9. All you have (*to do*) is (*to learn*) \_\_\_\_\_ a rule.
10. It cannot (*to do*) \_\_\_\_\_ today.

**Study Grammar in the online course. Make gerunds (add “-ing”) of the verbs in brackets to make the following sentences grammatically correct.**

1. When I'm tired, I enjoy \_\_\_\_\_ television. It's relaxing. (watch)
2. It's a nice day. Does anyone fancy \_\_\_\_\_ for a walk? (go)
3. I'm not in a hurry. I don't mind \_\_\_\_\_ (wait)
4. I wish that dog would stop \_\_\_\_\_. It's driving me mad. (bark)
5. We were hungry, so I suggested \_\_\_\_\_ dinner early. (have)
6. Hurry up! I don't want to risk \_\_\_\_\_ the train. (miss)
7. He tried to avoid \_\_\_\_\_ my question. (answer)
8. Could you please stop \_\_\_\_\_ so much noise? (make)
9. I can't help \_\_\_\_\_ when I watch Mr Bean. (laugh)

10. I can't imagine \_\_\_\_\_ anywhere else but here. (be)

**Study Grammar in the online course. Make infinitives (with or without “to”) or gerunds (add “-ing”) of the verbs in brackets to make the following sentences grammatically correct.**

1. She doesn't allow \_\_\_\_\_ in the house. (smoke)

2. I've never been to Iceland but I'd like \_\_\_\_\_ there. (go)

3. I'm in a difficult position. What do you advise me \_\_\_\_\_ (do)

4. She said the letter was personal and wouldn't let me \_\_\_\_\_ it.  
(read)

5. We were kept at the police station for two hours and then we were allowed  
\_\_\_\_\_ (go)

6. Where would you recommend me \_\_\_\_\_ for my holidays? (go)

7. I wouldn't recommend \_\_\_\_\_ in that restaurant. The food is awful.  
(eat)

8. The film was very sad. It made me \_\_\_\_\_ (cry)

9. Carol's parents always encouraged her \_\_\_\_\_ hard at school.  
(study)

10. Sarah gave up \_\_\_\_\_ to find a job in this country and decided to  
go \_\_\_\_\_ abroad. (try)

**Study Grammar in the online course.**

**1 Underline the required form of Participle I.**

1. “Dearest!” she cried, (*kissing, kissed, having kissed*) him passionately  
(A. Conan-Doyle).

2. An old man was approaching him (*singing, sang, having sung*) a student  
song in a drunken voice (A. Conan-Doyle).

3. It was a strange and impressive sight to see the old man and the young  
(*sitting, sat, having sat*) together in the same condition.

4. (*Stepping, having stepped*) to the front of the platform, the young man apologized for the behavior of his companion.
5. It was a small place with one public house (*serving, having served*) as a hotel to the rare travelers.
6. (*Waiting, waited*) for the crowds of visitors, the waxwork figures stood apathetically in their places.
7. I saw a policeman (*watching, having watched*) me too curiously.
8. His eyes were full of unselfish (*understanding, having understood*) love.
9. They stood quietly there with fast (*beating, being beaten, beaten*) hearts.
10. "Good day, sir", she greeted him gloomily, (*standing, being stood*) in the open doorway.

**Study Grammar in the online course. Open the brackets using Participle I or Participle II, Perfect Participle (active or passive):**

1. In 1820 some amino acids were isolated in crystalline form from solutions (*preparing, prepared*) \_\_\_\_\_ by heating proteins with mineral acid.
2. In the 20th century the vitamins and the elements (*requiring, required*) \_\_\_\_\_ only in small amounts were discovered.
3. The most important medicines (*discovered, discovering*) \_\_\_\_\_ in the twentieth century are vitamins made by partial synthesis, irradiation, fermentation and other methods.
4. The (*colouring, coloured*) \_\_\_\_\_ matter is used in the production of some perfumes.
5. A perfume is a material (*consisting, consisted*) \_\_\_\_\_ of one or more volatile constituents.
6. (*Having calculated, having been calculated*) \_\_\_\_\_ the coefficients, they could write the equation of the chemical reaction.
7. (*Having dissolved, having been dissolved*) \_\_\_\_\_, the substance was filtered, evaporated and dried.

8. (*Having found, having been found*) \_\_\_\_\_ the necessary solvent, they purified the compound by recrystallization.

9. (*Having synthesized, having been synthesized*) \_\_\_\_\_, the compound was cooled, weight and analyzed.

10. (*Having accepted, having been accepted*) \_\_\_\_\_ electrons, the ions reduced to the metallic form.

### Reading

Read the text “Cardiovascular System” in the online course.

Study the text on “Cardiovascular System” and find the synonyms to the words from the box

1) Average	a) supplements, vitamin
2) pump	b) reduction, declining
3) descend	c) provide, outfit
4) maintain	d) fall, get down
5) decreasing	e) medium, standart
6) coalesce	f) replacement, extraction
7) nutrient	g) restrain, hold off
8) removal	h) push, force out
9) supply	i) bend, join
10) prevent	j) support, keep up

Complete the sentences by choosing the words: *Breath, heart, heart, movement, pumps, smallest, top, valve, vein, vessel*

1. Artery is one of the tubes that carries blood from your \_\_\_\_\_ to the rest of your body.

2. Atrium is one of the two spaces in the \_\_\_\_\_ of your heart that push blood into the ventricles.
3. Capillaries are the \_\_\_\_\_ type of blood vessel in the body.
4. Circulation is the \_\_\_\_\_ of blood around your body.
5. Heart is the organ in your chest which \_\_\_\_\_ blood through your body.
6. Lung is one of the two organs in your body that you \_\_\_\_\_ with.
7. \_\_\_\_\_ is a part of a tube or pipe that opens and shuts like a door to control the flow of liquid.
8. \_\_\_\_\_ is one of the tubes which carries blood to your heart from other parts of your body.
9. Ventricle is one of the two spaces in the bottom of your \_\_\_\_\_ through which blood pumps out to your body.
10. \_\_\_\_\_ is a vein in your body.

**Complete the sentences:**

1) Human cardiovascular system consists of

... \_\_\_\_\_

2) The parts of systemic circulation are

... \_\_\_\_\_

3) The components of blood are

\_\_\_\_\_

4) The function of aorta is...

\_\_\_\_\_

5) The two major veins are

... \_\_\_\_\_

6) Two great vessels go into (enter)

... \_\_\_\_\_

7) The heart consists of

... \_\_\_\_\_

8) The right atrium is

... \_\_\_\_\_

9) To get to the different organs of the body the blood passes through

... \_\_\_\_\_

10) A blood supply to the heart muscle is provided by

... \_\_\_\_\_

**Read the text on “Red Blood Cells” (online course) and answer the following questions to the text :**

1) How are red blood cells also called? \_\_\_\_\_

2) What are the components of the blood \_\_\_\_\_

3) What is the primary function of red blood cells? \_\_\_\_\_

4) What is the shape of red blood cells? \_\_\_\_\_

5) Why do red blood cells have such shape? \_\_\_\_\_

6) How is the blood type determined? \_\_\_\_\_

7) What helps the body's immune system to recognize it's own red blood cell type? \_\_\_\_\_

**Read the text Red Blood Cell Structure (online course) and take the test.**

### **Test 1**

**1.** The layer of simple squamous epithelium that lines the inside of the heart is called

- a) myocardium.
- b) pericardium.
- c) endocardium.
- d) epicardium.

**2.** Blood transported by the pulmonary veins returns to the

- a) left atrium.
- b) right atrium.
- c) right ventricle.
- d) left ventricle.

**3.** The valve between the left ventricle and the blood vessel leaving the left ventricle is the

- a) bicuspid valve.
- b) tricuspid valve.
- c) pulmonary semilunar valve.
- d) aortic semilunar valve.

**4.** The bulk of the heart consists of

- a) cardiac muscle.
- b) smooth muscle.
- c) striated muscle.
- d) connective tissue.

**5.** The valve located between the right atrium and the right ventricle is the

- a) tricuspid valve.
- b) bicuspid valve.
- c) mitral valve.
- d) semilunar valve.

**6.** Blood vessels that carry blood away from the heart are called

- a) arteries.
- b) veins.
- c) capillaries.
- d) All of the above.

**7.** The smallest type of blood vessels are

- a) arteries.
- b) arterioles.
- c) venules.
- d) capillaries.

**8.** Blood pressure is highest in the

- a) arteries.
- b) arterioles.
- c) veins.
- d) capillaries.

**9.** Which of the following increase(s) blood pressure?

- a) increased cardiac rate
- b) increased peripheral resistance
- c) increased blood volume
- d) All of the above.

**10.** The pulse is a direct reflection of the

- a) cardiac output.
- b) blood pressure.
- c) venous return.
- d) heart beat.

## Test 2

1. How many chambers does the heart have?

- A) Six
- B) Five



- C) Four
- D) Three

2. The movement of blood through the heart and body is called:

- A) Circulation
- B) Locomotion
- C) Ventriculation
- D) Heart pump

3. The beating sound your heart makes comes from:

- A) Blood going in the wrong direction
- B) Valves closing
- C) The heart skipping beats
- D) Your ears playing tricks on you

4. With circulation, the heart provides your body with:

- A) Oxygen
- B) Nutrients
- C) A way to get rid of waste
- D) All of the above

5. The atria are the “upstairs” chambers of the heart and these parts are the “downstairs” chambers:

- A) Valves
- B) Ventricles
- C) Blood
- D) Candy hearts

6. What wall separates the left side and right side of the heart?

- A) Ventricle

- B) Atrium
- C) Septum
- D) The great wall

7. What parts act like doors that control blood flow in the heart?

- A) Valves
- B) Heart dams
- C) Kidneys
- D) Chambers

8. What organ removes waste from blood?

- A) Heart
- B) Lungs
- C) Eyes
- D) Kidneys

9. You can keep your heart strong by:

- A) Eating heart-shaped candy
- B) Doing activities, like playing outside, riding your bike, and swimming
- C) Smoking
- D) Sleeping 18 hours a day

10. These are tubes that carry blood back to the heart:

- A) Arteries
- B) Veins
- C) Pipes
- D) Tubas

## MODULE 5

### THE GASTROINTESTINAL SYSTEM

#### Vocabulary

Read, translate in written and remember to following words:

Abnormal\_\_\_\_\_

Absorb\_\_\_\_\_

Achalasia\_\_\_\_\_

Acute\_\_\_\_\_

Alarmed\_\_\_\_\_

Alcoholic hepatitis\_\_\_\_\_

Amylase\_\_\_\_\_

Analysis\_\_\_\_\_

Anaesthetise\_\_\_\_\_

Antacid\_\_\_\_\_

Anus\_\_\_\_\_

Appointment\_\_\_\_\_

Approximately\_\_\_\_\_

Arrange\_\_\_\_\_

Assimilate\_\_\_\_\_

Autoimmune hepatitis\_\_\_\_\_

Avoid\_\_\_\_\_

Average\_\_\_\_\_

#### **B**

Belly\_\_\_\_\_

Bleeding\_\_\_\_\_

Blood\_\_\_\_\_

Bloating\_\_\_\_\_

Bolus\_\_\_\_\_

Bowel\_\_\_\_\_

Breakdown\_\_\_\_\_

Burp\_\_\_\_\_

#### **C**

Cancer\_\_\_\_\_

Catalytic enzyme\_\_\_\_\_

Celiac disease\_\_\_\_\_

Cholangitis\_\_\_\_\_

Cholecystitis\_\_\_\_\_

Chronic\_\_\_\_\_

Chyle\_\_\_\_\_

Chyme\_\_\_\_\_

Cirrhosis\_\_\_\_\_

Colon\_\_\_\_\_

Colonoscopy\_\_\_\_\_

Colostomy bag\_\_\_\_\_

Complicated\_\_\_\_\_

Condition\_\_\_\_\_

Constipation\_\_\_\_\_

Containers\_\_\_\_\_

Continuation\_\_\_\_\_

Cool\_\_\_\_\_

Crohn disease\_\_\_\_\_

Crude\_\_\_\_\_

Cure\_\_\_\_\_

**D**

Damage\_\_\_\_\_

Defecate\_\_\_\_\_

Diarrhea\_\_\_\_\_

Diet\_\_\_\_\_

Dietitian, \_\_\_\_\_

Digestion\_\_\_\_\_

Digestive system\_\_\_\_\_

Discomfort\_\_\_\_\_

Dissolve\_\_\_\_\_

Diverticulitis\_\_\_\_\_

Drugs\_\_\_\_\_

Duodenal\_\_\_\_\_

Duodenal ulcer\_\_\_\_\_

**E**

Effect

Endoscopic retrograde \_\_\_\_\_

cholangiopancreatography (ERCP)

\_\_\_\_\_

Endoscopic ultrasound\_\_\_\_\_

Endoscopy\_\_\_\_\_

**F**

Fissure\_\_\_\_\_

Fit\_\_\_\_\_

Flexible\_\_\_\_\_

Foot (*pl.* feet) \_\_\_\_\_**G**

Gallbladder\_\_\_\_\_

Gallstones\_\_\_\_\_

Gastric juice\_\_\_\_\_

Gastroenterologist\_\_\_\_\_

Gastroesophageal reflux disease

(GERD) \_\_\_\_\_

Gastrointestinal tract\_\_\_\_\_

**H**

Harm\_\_\_\_\_

Heartburn\_\_\_\_\_

Hemorrhoids\_\_\_\_\_

Hiatal hernia\_\_\_\_\_

Hold\_\_\_\_\_

Hydrochloric acid\_\_\_\_\_

Hypersensitivity\_\_\_\_\_

**I**

Indicate\_\_\_\_\_

Incontinence\_\_\_\_\_

Initially\_\_\_\_\_

In-patient\_\_\_\_\_

Intention\_\_\_\_\_

Inserting\_\_\_\_\_

Intestinal ischemia\_\_\_\_\_

Involve\_\_\_\_\_

Irritable bowel syndrome\_\_\_\_\_

**L**

Lab\_\_\_\_\_

Labelling\_\_\_\_\_

Lactose intolerance\_\_\_\_\_

Laparoscopy\_\_\_\_\_

Large intestine\_\_\_\_\_

Length\_\_\_\_\_

Liquids\_\_\_\_\_

Life-threatening\_\_\_\_\_

Lingual lipase\_\_\_\_\_

Lingual \_\_\_\_\_

papillae\_\_\_\_\_

Liver\_\_\_\_\_

Liver failure\_\_\_\_\_

Lymphatic system\_\_\_\_\_

**M**

Malabsorption\_\_\_\_\_

Mastication\_\_\_\_\_

Mouth (oral cavity) \_\_\_\_\_

**N**

Nausea\_\_\_\_\_

Nurse practitioner (NP) \_\_\_\_\_

Nutritionist\_\_\_\_\_

**O**

Odour-free\_\_\_\_\_

Operate\_\_\_\_\_

Operation\_\_\_\_\_

Outcome\_\_\_\_\_

Out-patient\_\_\_\_\_

Over-eating\_\_\_\_\_

**P**

Palliate\_\_\_\_\_

Painful\_\_\_\_\_

Pancreas\_\_\_\_\_

Pancreatic pseudocyst\_\_\_\_\_

Pancreatitis\_\_\_\_\_

Peptic ulcer\_\_\_\_\_

Perforated ulcer\_\_\_\_\_

Peristalsis\_\_\_\_\_

Physician assistant (PA) \_\_\_\_\_

Polyp\_\_\_\_\_

Primary care doctor\_\_\_\_\_

Proctitis\_\_\_\_\_

Push down\_\_\_\_\_

**R**

Radiologist\_\_\_\_\_

Reabsorb\_\_\_\_\_

Reassure\_\_\_\_\_

Receptionist\_\_\_\_\_

Rectal prolapse\_\_\_\_\_

Rectum\_\_\_\_\_

Relief\_\_\_\_\_

Remove\_\_\_\_\_

Rhythmic contraction\_\_\_\_\_

Routine\_\_\_\_\_

**S**

Saliva\_\_\_\_\_

Salivary glands\_\_\_\_\_

Sample\_\_\_\_\_

Scared\_\_\_\_\_

Secretion\_\_\_\_\_

Segmentation contractions. \_\_\_\_\_

Serous glands \_\_\_\_\_  
 Short bowel syndrome \_\_\_\_\_  
 Small intestine \_\_\_\_\_  
 Stage \_\_\_\_\_  
 Stomach \_\_\_\_\_  
 Stomach acid \_\_\_\_\_  
 Stool \_\_\_\_\_  
 Stricture (narrowing) \_\_\_\_\_  
 Surface \_\_\_\_\_  
 Surgeon \_\_\_\_\_  
 Swallow \_\_\_\_\_

**T**

Tablets \_\_\_\_\_  
 Tongue \_\_\_\_\_  
 Tooth (*pl.* teeth) \_\_\_\_\_  
 Tranquilizer \_\_\_\_\_  
 Trigger \_\_\_\_\_  
 Tube \_\_\_\_\_  
 Tests \_\_\_\_\_

**U**

Ulcer \_\_\_\_\_  
 Ulcerative colitis \_\_\_\_\_  
 Urine \_\_\_\_\_

**V**

Via \_\_\_\_\_  
 Vomiting \_\_\_\_\_

**W**

Weight gain \_\_\_\_\_  
 Wink \_\_\_\_\_  
 Worse \_\_\_\_\_  
 Worst \_\_\_\_\_

## Reading

**I. Read the text “GASTROINTESTINAL SYSTEM” (online course), study the picture dictionary and do the exercises.**

**EXERCISE 1. Match the word with the definitions:**

<b>Liver</b>	a dark colored elongated organ, filtering the blood
<b>Gallbladder</b>	It stores solid waste until it leaves the body through the anus
<b>Small intestine</b>	a punch, connecting ileum with the ascending colon of the large intestine
<b>Pancreas</b>	a dark brown organ in upper abdomen which creates bile
<b>Esophagus</b>	an organ (located under the small intestine) producing chemicals and hormones
<b>Spleen</b>	a sac, located under the liver. Storing bile is its function
<b>Duodenum</b>	a continuation of the pyrolic end of the stomach
<b>Rectum</b>	It consists of four sections: ascending, transverse, descending and sigmoid colon
<b>Colon</b>	It is known as “food pipe”, it comes down from the mouth to the stomach
<b>Caecum</b>	first and the main digestive part of the small intestine

**EXERCISE 2. Choose the correct term:**

*Colon, cancer, acid, poisoning, the large intestine, vomiting, nausea, problem, jaundice, gastrointestinal disease*

1. A common and difficult to treat \_\_\_\_\_ is esophageal disease in progressive systemic sclerosis (PSS).
2. Inflammation of the lining of \_\_\_\_\_ is a disease, which is called dysentery.

3. Loss of appetite, pain, nausea, \_\_\_\_\_ and bleeding from stomach are the symptoms of a person, suffering from gastritis.
4. Abnormal cells (in some people with GERD) may lead to \_\_\_\_\_ of the esophagus.
5. Spasms of the muscles in the wall of the \_\_\_\_\_ cause amebic colitis.
6. Sodium bicarbonate may be prescribed to correct the pH balance of the body when \_\_\_\_\_ produces a metabolic acidosis.
7. Diarrhoea may be got when you have been in contact with somebody who has it or from food \_\_\_\_\_ - after eating contaminated food or drinking contaminated water.
8. A yellowish discoloration of the sclera (eye white area) and the skin is the main symptom of \_\_\_\_\_ .
9. All stimuli that cause \_\_\_\_\_ work via the vomiting center in the brain, which gives signals to the sensation of it and coordinates the physical act of vomiting.
10. Your esophagus can be damaged by \_\_\_\_\_ and it is possible hard to swallow.

**EXERCISE 3. Read some interesting facts about Digestive System and translate them:**

- The **average** human being has over 400 different species of bacteria in their colon.  
\_\_\_\_\_
- It takes **approximately** seven seconds for food to travel through the esophagus and reach the stomach. \_\_\_\_\_
- An adult female's small intestine is longer than the average adult male's. \_\_\_\_\_
- Paul Hunn, who lives in London, **holds** the world record for the loudest human burp. \_\_\_\_\_
- The liver has over 500 different functions, one of which is producing bile to break down digestive fats. \_\_\_\_\_



- The stomach of an adult holds up to 1.5 liters of food and food stays here for 2 to hours. \_\_\_\_\_
- **Estimates** of how much saliva our bodies produce each day **range** from 1 to 3 liters. \_\_\_\_\_
- The whole digestive tract is over 29 feet long, starting at the mouth and ending at the anus. \_\_\_\_\_

**EXERCISE 4. Read and translate the following sentences:**

1. The liver plays a very important part in the vital activity of the organism.

\_\_\_\_\_

2: From the stomach the food passes in small portions into the small intestine where it undergoes further mechanical and chemical changes.

\_\_\_\_\_

3. The small intestine is only 1.5 to 2 inches in diameter at the point where it leaves the stomach and it narrows somewhat thereafter.

\_\_\_\_\_

4. After the food leaves the stomach it is acted on by several digestive enzymes.

\_\_\_\_\_

5. The stomach is a bag the walls of which are largely made up of involuntary or smooth muscle fibres.

\_\_\_\_\_

6. The liver is a large and extremely important organ whose work is somewhat intermediate between digestion and nutrition.

\_\_\_\_\_

7. The esophagus is a 9 to 10-inch muscular tube that extends from the pharynx to the stomach.

\_\_\_\_\_

8. The food material which is taken into the mouth must be digested mechanically or chemically as it travels through the gastrointestinal tract.

\_\_\_\_\_

9. Jaundice is the yellow color of skin sclerae and mucous membranes due to an increase of bilirubin in the plasma.

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10. Some patients' digestive systems react more intensely to emotional stress due to hypersensitive nerve endings in their intestinal tract.

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**Module 6**  
**REPRODUCTIVE SYSTEM**

*Exercise 1. Translate following terms in written and read the definitions:*

<i>Term</i>	<i>Definition</i>
Bladder	The organ that stores urine.
Cervix	The lower, narrow end of the uterus that forms a canal between the uterus and vagina.
Ejaculatory Ducts	Either of a pair of ducts through which semen passes, each of which is formed by the merging of the vas deferens and the duct of the seminal vesicle.
Endometrium	The layer of tissue that lines the uterus.
Fallopian Tubes	A slender tube through which eggs pass from an ovary to the uterus. In the female reproductive tract, there is one ovary and one fallopian tube on each side of the uterus.
Glands	A group of cells that secrete substances. Endocrine glands secrete hormones. Exocrine glands secrete salt, enzymes, and water.
Hormones	A messenger molecule that helps coordinate the actions of various tissues; made in one part of the body and transported, via the bloodstream, to tissues and organs elsewhere in the body.
Lymph Nodes	A rounded mass of lymphatic tissue that is surrounded by a capsule of connective tissue. Lymph nodes filter lymph (lymphatic fluid), and they store lymphocytes (white blood cells). They are located along lymphatic vessels. Also called lymph gland.
Myometrium	The muscular outer layer of the uterus.

Ovaries	The ovaries are a pair of female reproductive glands in which the ova, or eggs, are formed. The ovaries are located in the pelvis, one on each side of the uterus.
Penis	An external male reproductive organ. It contains a tube called the urethra, which carries semen and urine to the outside of the body.
Prostate	A gland in the male reproductive system. The prostate surrounds the part of the urethra (the tube that empties the bladder) just below the bladder, and produces a fluid that forms part of the semen.
Rectum	The last several inches of the large intestine closest to the anus.
Scrotum	In males, the external sac that contains the testicles.
Semen	The fluid that is released through the penis during orgasm. Semen is made up of sperm from the testicles and fluid from the prostate and other sex glands.
Seminal Vesicle	A gland that helps produce semen.
Sperm	The male reproductive cell, formed in the testicle. A sperm unites with an egg to form an embryo.
Testicles (Testes)	One of two egg-shaped glands inside the scrotum that produce sperm and male hormones. Also called testicle.
Ureter	The tube that carries urine from the kidney to the bladder.
Urethra	The tube that carries urine from the bladder to the outside of the body.
Uterus (Womb)	The small, hollow, pear-shaped organ in a woman's pelvis. This is the organ in which a fetus develops. Also called womb.
Vagina	The muscular canal that goes from the uterus to the outside of the body. During birth, the baby passes through the vagina.
Vas Deferens	A coiled tube that carries the sperm out of the testes.

*Exercise 2. Read some information about the Reproductive System in the online course. Translate the following sentences.*

### **THE REPRODUCTIVE SYSTEM**

1. The reproductive system is a collection of internal and external organs - in both males and females - that work together for the purpose of procreating.

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2. New life begins when an egg from a woman is fertilised by sperm from a man.

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### **THE FEMALE REPRODUCTIVE SYSTEM**

1. The female reproductive organs are the vagina, womb (uterus), fallopian tubes and ovaries:

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2. If the egg is fertilised on its journey down the fallopian tube, it lodges in the womb lining. If the egg is unfertilised, falling levels of the hormone progesterone make the womb lining come away. This is called a period, or menstruation.

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### **THE MALE REPRODUCTIVE SYSTEM**

The male reproductive organs are the penis, the testicles, the epididymis, the vas deferens and the prostate gland:

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## MALE REPRODUCTIVE HORMONES

Hormones are chemical messengers made by glands in the body. Androgens are the hormones that make men 'male'.

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## THE SPERM

The sperm is the male reproductive cell. Its role is to fertilise an egg. It contains the man's genetic material in its head.

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*Exercise 3. Mark the following statements T (true) or F (false):*

1. Scientists argue if the reproductive system is among the most important systems in the entire body. [ ]
2. Vagina is a muscular canal around 5.5 cm long that extends from the neck of the womb to the genitals. [ ]
3. Sperm and sex hormones are made by the testicles. [ ]
4. Ovaries are two small almond-shaped glands that contain ova. Sex hormones are not made by the ovaries. [ ]
5. The epididymis collects and stores sperm. [ ]
6. Sperm production requires a temperature around 2 °C lower than that of the atmospheric air. [ ]
7. The average menstrual cycle is around 24 days. [ ]
8. Androgens are responsible for sexual functioning, fertility and secondary sexual characteristics. [ ]
9. No egg contains genetic material. [ ]

10. Sperm production continues throughout a man's life, from puberty into old age.
11. The womb is a muscular organ, shaped like an upside down apple. [ ]
12. Penis's lining is called the endometrium. [ ]
13. The most important androgen is testosterone, which is manufactured in the ovaries. [ ]
14. If you don't want to have a baby you can improve your chance of getting pregnant if you know about ovulation and the 'fertile window' in the menstrual cycle. [ ]

**Exercise 4. Read the following texts and fill in the gaps with the appropriate term:**

**Text 1.**

To secrete	bloodstream	hypothalamus	development	thyroid	hormone
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**What is the Role of the Endocrine System?**

The endocrine system is made up of glands that produce and secrete hormones, chemical substances produced in the body that regulate the activity of cells or organs. These hormones regulate the body's growth, (the physical and chemical processes of the body), and sexual \_\_\_\_\_ and function. The hormones are released into the \_\_\_\_\_ and may affect one or several organs throughout the body.

Hormones are chemical messengers created by the body. They transfer information from one set of cells to another to coordinate the functions of different parts of the body.

The major glands of the endocrine system are the hypothalamus, pituitary, \_\_\_\_\_, parathyroids, adrenals, pineal body, and the reproductive organs (ovaries and testes). The pancreas is also a part of this system; it has a role in \_\_\_\_\_ production as well as in digestion.

The endocrine system is regulated by feedback in much the same way that a thermostat regulates the temperature in a room. For the hormones, a signal is sent

from the ... to the pituitary gland in the form of a "releasing hormone," which stimulates the pituitary to secrete a "stimulating hormone" into the circulation. The stimulating hormone then signals the target gland \_\_\_\_\_ its hormone. As the level of this hormone rises in the circulation, the hypothalamus and the pituitary gland shut down secretion of the releasing hormone and the stimulating hormone, which in turn slows the secretion by the target gland. This system results in stable blood concentrations of the hormones that are regulated by the pituitary gland.

### Text 2.

reproductive	facial hair	estrogen	androgens
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### Reproductive Glands

The reproductive glands are the main source of sex hormones. In males, the testes, located in the scrotum, secrete hormones called ... \_\_\_\_\_; the most important of which is testosterone. These hormones affect many male characteristics (for example, sexual development, growth of \_\_\_\_\_ and pubic hair) as well as sperm production. In females, the ovaries, located on both sides of the uterus, produce \_\_\_\_\_ and progesterone as well as eggs. These hormones control the development of female characteristics (for example, growth), and they are also involved in \_\_\_\_\_ functions.

**Exercise 6. Complete the sentences with the proper forms of the words given in brackets:**

#### Female reproductive system problems

Some of the conditions (*woman/women*) may experience at some time in their (*life/lives*) include:

- 1) Endometriosis – the presence and growth of (*function/functioning*) endometrial tissue in places other than the uterus
- 2) Fibroids – non-malignant tumours of the womb
- 3) Infertility – (*ability/inability*) to become pregnant



4) (*Pain/painful*) periods

5) Premenstrual (*tense/tension*)

6) STIs – bacteria or viruses (*acquired/acquiring*) through sexual contact, some of which can cause cancer or infertility.

**MODULE 7**  
**ENDOCRINE SYSTEM**

**Translate the terms and their definitions into Russian/ Ukrainian:**

Adenoma	A benign tumor of an endocrine gland, such as a parathyroid adenoma	
Adrenaline	The hormone secreted by the central part (medulla) of the adrenal gland	
Anaplastic Thyroid Cancer	A rare type of thyroid cancer that spreads rapidly. This is the least common but most deadly of all thyroid cancers	
Antithyroid Drugs	Medications that slow down the thyroid gland's ability to produce thyroid hormone. There are several different types, but most interfere with the thyroid's ability to synthesize hormone	
Autocrine	chemical signal that elicits a response in the same cell that secreted it	
Beta Blocking Drug	Medications that help block the symptoms (palpitations, tremor) caused by excess thyroid hormone	
Calcitonin	A hormone produced by medullary	

	<p>thyroid cancer. Its measurements in the blood is a sensitive test for early diagnosis, as well as detecting recurrence following an operation for medullary thyroid cancer</p>	
Cold Nodule	<p>A lump in the thyroid gland that does not take up iodine on a scan as well as the surrounding thyroid tissue.</p> <p>Cancers show on a scan as cold nodules but most cold nodules are not cancer</p>	
Compensatory Goiter	<p>Thyroid enlargement due to inefficient thyroid tissue that compensates for its inefficiency by enlarging</p>	
De Quervain's Thyroiditis	<p>Inflammation of the thyroid gland causing enlargement and pain. It often causes fever and symptoms of hyperthyroidism</p>	
Desiccated Thyroid	<p>A crude preparation made of animal thyroid glands. It was the first available source of thyroid hormone (thyroxine). Because of poor absorption and impurities it is no longer used</p>	

Diffuse Goiter	Generalized enlargement of the entire thyroid gland with a smooth surface	
Endocrine gland	tissue or organ that secretes hormones into the blood and lymph without ducts such that they may be transported to organs distant from the site of secretion	
Endocrine system	cells, tissues, and organs that secrete hormones as a primary or secondary function and play an integral role in normal bodily processes	
Exocrine system	cells, tissues, and organs that secrete substances directly to target tissues via glandular ducts	
Goiter	Enlargement of the thyroid gland for any reason. It may be generalized enlargement (diffuse) or asymmetric (nodular)	
Hormone	secretion of an endocrine organ that travels via the bloodstream or lymphatics to induce a response in target cells or tissues in another part of the body	
Hot Nodule	A lump in the thyroid gland that concentrates iodine on a scan more than the normal surrounding thyroid tissue Hot nodules are	

	very rarely cancerous	
Iodine	A non-metallic element found in food. It is necessary for normal thyroid function.	
Isthmus	A small piece of thyroid tissue that connects the right and left lobes of the thyroid gland	
Medullary Thyroid Carcinoma	A rare form of thyroid cancer that produces an abnormal hormone (calcitonin). This form of thyroid cancer is often hereditary	
Nodular Goiter	Enlarged thyroid gland with one or more nodules	
Nodule	A lump or growth of tissue within the thyroid gland	
Osteoporosis	The process by which too much calcium is lost from the bones which causes the bones to become brittle. Associated with aging, but made much worse by hyperparathyroidism	
Paracrine	chemical signal that elicits a response in neighboring cells; also called paracrine factor	
Parathyroid Glands	Four small glands located in the neck, near the thyroid gland. They produce parathormone which controls calcium metabolism	

Pheochromocytoma	A tumor of the adrenal medulla which secretes adrenaline	
Pituitary Gland	A small gland the size of a peanut that is located behind the eyes of the base of the brain. It secretes hormones that control other glands (thyroid, adrenal, testicles and ovaries) as well as growth	
Parathyroid Hormone (PTH)	Hormone secreted by the parathyroid glands. Circulates in the blood stream to cause absorption of calcium from our diets, and out of bones	
Propylthiouracil (PTU)	An antithyroid medication which prevents thyroid cells from producing thyroid hormone. Used to control hyperthyroidism	
Silent Thyroiditis	A self limited thyroiditis that resembles Hashimoto's thyroiditis on biopsy but De Quervain's thyroiditis on scan	
Thyroid Stimulating Hormone (TSH)	A hormone produced by the pituitary that stimulates the thyroid gland. Its measurement is a very sensitive test of thyroid status	
Thyroid Binding Globulin (TBG)	A protein in the blood that binds with thyroxine (T4)	
Thyroglobulin	A protein in the thyroid gland, a small amount of which gets into	

	the blood. Its level is followed after thyroid surgery to detect recurrence of thyroid cancer	
Thyroidectomy	An operation removing all or part of the thyroid gland	
Thyroiditis	Inflammation of the thyroid gland	
Thyroxine (T4)	The primary hormone produced by the thyroid gland. It is available as medication	
Toxic Goiter	An enlarged thyroid gland that produces too much thyroid hormone	
TRH Test	A very sensitive test for abnormal thyroid function	
Triiodothyronine (T3)	The second hormone produced by the thyroid gland. It is more potent than thyroxine (T4)	

### READING

- In the online course, read the text “Endocrine System”, study the picture, and do the following exercises.**

**Read the following text and fill in the gaps with the appropriate term:**

monitoring	respond	resection	benefits	stimulate
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### CAREERS CONNECTIONS: ENDOCRINOLOGIST

Endocrinology is a specialty in the field of medicine that focuses on the treatment of endocrine system disorders. Endocrinologists—medical doctors who

specialize in this field—are experts in treating diseases associated with hormonal systems, ranging from thyroid disease to diabetes mellitus. Endocrine surgeons treat endocrine disease through the removal, or \_\_\_\_\_, of the affected endocrine gland.

Patients who are referred to endocrinologists may have signs and symptoms or blood test results that suggest excessive or impaired functioning of an endocrine gland or endocrine cells. The endocrinologist may order additional blood tests to determine whether the patient's hormonal levels are abnormal, or they may \_\_\_\_\_ or suppress the function of the suspect endocrine gland and then have blood taken for analysis. Treatment varies according to the diagnosis. Some endocrine disorders, such as type 2 diabetes, may \_\_\_\_\_ to lifestyle changes such as modest weight loss, adoption of a healthy diet, and regular physical activity. Other disorders may require medication, such as hormone replacement, and routine \_\_\_\_\_ by the endocrinologist. These include disorders of the pituitary gland that can affect growth and disorders of the thyroid gland that can result in a variety of metabolic problems. Some patients experience health problems as a result of the normal decline in hormones that can accompany aging. These patients can consult with an endocrinologist to weigh the risks and \_\_\_\_\_ of hormone replacement therapy intended to boost their natural levels of reproductive hormones.

In addition to treating patients, endocrinologists may be involved in research to improve the understanding of endocrine system disorders and develop new treatments for these diseases.

## GRAMMAR

### Take the test to check your knowledge of grammar:

1. Endocrine \_\_\_\_\_ hormones which are released into the bloodstream; exocrine make a substance released directly onto skin surface or into a duct, e.g. salivary duct.  
a) make   b) making   c) makes   d) is making   e) to make



2. Reproduction, growth and development, internal homeostasis, helps \_\_\_\_\_ with environmental changes.

- a) cope    b) to cope    c) copes    d) coped    e) copping

3. High blood glucose \_\_\_\_\_ to insulin release; Low blood glucose \_\_\_\_\_ to glucagon release.

- a) lead...lead                      b) to lead...to lead                      c) leading...leading  
d) leads...leads                      e) led...led

4. Hypothalamus makes stimulatory hormones \_\_\_\_\_ releasing hormones and inhibitory hormones.

- a) calls    b) call    c) calling    d) called    e) to call

5. Morphine like compound made by anterior pituitary gland, but \_\_\_\_\_ really a neuromodulator, not a hormone.

- a) was    b) am    c) to be    d) been    e) is

6. Inferior to larynx, and histology shows follicles filled with thyroid hormone (colloid), and the surrounding follicle cells \_\_\_\_\_ the hormone.

- a) to make                      b) makes    c) making    d) made    e) make

7. The interstitial cells \_\_\_\_\_ parafollicular cells and make calcitonin.

- a) call    b) is called    c) are called    d) calls    e) to call

8. Endocrine make hormones & are \_\_\_\_\_ into the bloodstream; exocrine make a substance released directly onto skin surface or into a duct, e.g. salivary duct.

- a) released    b) release    c) releasing    d) releases    e) to release

9. Hormone \_\_\_\_\_ by an endocrine gland & is a chemical messenger traveling in the bloodstream.
- a) make   b) is made   c) makes   d) made   e) to make
10. The target cell responds to the hormone because it \_\_\_\_\_ matching receptors for the hormone.
- a) has   b) to have   c) had   d) having   e) have
11. The testes produce testosterone, which \_\_\_\_\_ the production of sperm and the development of male sexual characteristics at puberty.
- a) stimulating   b) to stimulate   c) stimulated   d) stimulates   e) stimulate
12. Hormones help maintain homeostasis on a daily basis and \_\_\_\_\_ the activity of smooth and cardiac muscles, and some glands.
- a) regulates   b) regulate   c) to regulate   d) regulating   e) regulated
13. When the amount of a hormone in the blood reaches a certain level, the endocrine system sends \_\_\_\_\_ that stop the release of that hormone.
- a) signaled   b) to signal   c) signaling   d) signals   e) signal
14. Graves Disease \_\_\_\_\_ a common form of hyperthyroidism resulting from overproduction of thyroxine.
- a) are   b) was   c) is   d) be   e) been
15. Scientific research on human epidemiology, laboratory animals, and fish and wildlife suggests that environmental contaminants can \_\_\_\_\_ the endocrine system leading to adverse-health consequences.
- a) disrupt   b) be disrupt   c) to disrupt   d) disrupting   e) disrupted

**Take the test to check your knowledge of medical terminology:**

1. Along with the nervous system, the \_\_\_\_\_ system coordinates the various activities of body parts.  
a) digestive    b) endocrine    c) circulatory    d) respiratory    e) excretory
  
2. The organ that responds to the action of a hormone is known as the \_\_\_\_\_ organ.  
a) acting    b) target    c) regulation    d) feedback    e) promotion
  
3. \_\_\_\_\_ hormones usually pass through the cell membrane by diffusion  
a) steroid    b) exocrine    c) G protein    d) Peptide    e) Polypeptide
  
4. The protein that is found embedded in the cell membrane and allows the hormone to bind to it is known as the \_\_\_\_\_.  
a) mRNA    b) secondary messenger    c) receptor  
d) receiver    e) nucleus
  
5. The building blocks of protein-based hormones are \_\_\_\_\_.  
a) sugars    b) fats    c) fatty acids    d) amino acids    e) ATP
  
6. Further release of a hormone is usually down-regulated by the hormone itself. This is known as \_\_\_\_\_.  
a) negative feedback    b) positive feedback    c) G protein activation  
d) Transcriptional activation    e) Parasympathetic firing
  
7. Which of the following correctly describes second messengers in hormonal action  
a) They are produced within a second  
b) They are used only when the first messengers are not functioning  
c) They are found on the cell membrane and allow the hormone to bind

- d) They break down the hormones that enter the cell
- e) They pass on the hormonal message within the cell

**8.** Testosterone is produced by the \_\_\_\_\_.

- a) pituitary gland
- b) pineal gland
- c) hypothalamus
- d) testes
- e) thymus

**9.** Hypersecretion of the growth hormone during childhood is likely to lead to \_\_\_\_.

- a) gigantism
- b) diabetes insipidus
- c) diabetes mellitus
- d) hypothyroidism
- e) Cushing's syndrome

**10.** Home pregnancy tests measure the level of \_\_\_\_\_ in the subjects urine

- a) estrogen
- b) testosterone
- c) human growth hormone
- d) human chorionic gonadotropin
- e) prolactin

**11.** Which of the following is NOT secreted by the anterior pituitary

- a) growth hormone
- b) adrenocorticotropic hormone (ACTH)
- c) prolactin
- d) thyroid-stimulating hormone (TSH)
- e) epinephrine (adrenaline)

**12.** Which of the following is secreted by the pancreas?

- a) thyroid hormone
- b) parathyroid hormone
- c) insulin
- d) gastrin
- e) renin

**13.** Which of the following is secreted by the adrenal gland?

- a) glucagon
- b) norepinephrine
- c) thyroid hormone
- d) gastrin
- e) estrogen

**14.** The adrenal cortex releases cortisone to help the body deal with:

- a) flight-or-fight responses
- b) long-term stress
- c) excess urine production
- d) acromegaly
- e) cancer

**15.** Pitocin is a synthetic form of \_\_\_\_\_ used during childbirth to induce labor artificially

- a) oxytocin      b) estrogen      c) progesterone
- d) thyroid hormone      e) the pituitary hormone

**16.** Androgens is a term to describe \_\_\_\_\_ in general.

- a) female sex hormones    b) male sex hormones    c) thyroid hormones
- d) pituitary hormones    e) hormones of the adrenal glands

**17.** The pineal gland produces the hormone melatonin which rise and fall in levels with day and night. This has led some scientists to propose that melatonin is involved in \_\_\_\_\_.

- a) food intake regulation    b) glucose metabolism    c) growth in bone length
- d) maintaining pregnancy    e) sleep regulation

**18.** Tropic hormones are hormones that \_\_\_\_\_

- a) produce antibodies
- b) are produced in large amounts
- c) stimulates organs to secrete other hormones
- d) are produced only in the tropics
- e) are non-specific in their binding

**19.** In patients with diabetes mellitus, the level of glucose in the blood and urine is:

- a) zero      b) unusually low      c) normal      d) unusually high
- e) constantly responding to light-dark cycles

**20.** The follicle-stimulating hormone (FSH) stimulates:

- a) follicle development in the ovaries of females
- b) follicle development in males
- c) the growth of follicles throughout the body

d) follicle development in the placenta of pregnant females

e) death of follicles in the body

**21.** Aldosterone stimulates the reabsorption of water and minerals in the kidney tubules. What symptoms would you expect in a patient with hypersecretion of aldosterone?

a) excessive muscle buildup      b) muscle wasting      c) swollen tissues

d) decreased blood pressure      e) slower heart rate

**22.** A generalized hypersecretion of all the adrenal cortex hormones causes \_\_\_\_\_ disease.

a) Graves    b) Addison's    c) Cushing's    d) Cretinism    e) Diabetes insipidus

**23.** Which of the following hormones is NOT secreted by the pituitary gland?

a) Glucagon    b) Follicle-stimulating hormone    c) Luteinizing hormone

d) Oxytocin      e) Antidiuretic hormone

**Choose the right term:**

**1.** After consuming a banana split, which hormones would be expected to increase?

a) Prolactin    b) Glucagon    c) Insulin    d) Parathyroid Hormone

**2.** Hormones released by nerve cells of the \_\_\_\_\_ regulate hormones secreted by the \_\_\_\_\_.

a) hypothalamus, anterior pituitary    b) hypothalamus, posterior pituitary

c) anterior pituitary, hypothalamus    d) cerebellum, posterior pituitary

**3.** Which of these hormones is secreted in the liver?

a) renin    b) somatomedin    c) erythropoietin    d) estrogen

**4.** What is the ultimate purpose of hormones?

a) to maintain growth      b) to keep the brain functioning

c) to stimulate metabolism      d) none of the above

**5.** What is another name for thyroxine?

a) tetraiodothyronine      b) thyroid      c) thymus      d) triiodothyronine

**6.** Adrenaline is...

- a) produced by the adrenal cortex
- b) also called epinephrine
- c) released when the parasympathetic nervous system is stimulated
- d) none of the above

**7.** If you drank a liter of water very quickly, the result would be

- a) increased secretion of oxytocin      b) decreased secretion of antidiuretic hormone
- c) decreased secretion of oxytocin      d) increased secretion of antidiuretic hormone

**8.** How is hormone secretion regulated?

- a) by the nervous system      b) by other hormones
- c) by changes in blood composition      d) all of the above

**9.** When an excess of a hormone is present, the number of target cell receptors may decrease. This change is called ...

- a) adaptation      b) down-regulation      c) up-regulation      d) accommodation

**10.** Which of the following is NOT a function of insulin?

- a) increased cellular absorption of glucose
- b) production is inhibited by low blood sugar
- c) increased rate of glycogen synthesis
- d) increased breakdown of lipids

**11.** This hormone is primarily responsible for regulating the rate of metabolism.

- a) growth      b) thyroxine      c) adrenaline      d) norepinephrine

**12.** An example of a fast-acting hormone is:

- a) human growth hormone    b) adrenaline    c) oestrogen    d) glucagon

**13.** The hormone called the 'fight or flight' hormone is:

- a) adrenaline    b) testosterone    c) human growth hormone    d) insulin

**14.** Caffeine in Coca-Cola and coffee interferes with the anti-diuretic hormone. The result of large doses of caffeine would be:

- a) dehydration    b) prolonged vitamin deficiency    c) death    d) hunger

**15.** To induce childbirth, what hormone can be injected intravenously?

- a) prolactin    b) progesterone    c) oxytocin    d) the anti-diuretic hormone



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