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АНГЛИЙСКИЙ ЯЗЫК

БАЗОВЫЙ КУРС

УЧЕБНИК ДЛЯ МЕДИЦИНСКИХ УЧИЛИЩ И КОЛЛЕДЖЕЙ

Министерство образования и науки РФ

Рекомендовано ФГБУ «Федеральный институт развития образования» в качестве учебника для использования в образовательном процессе образовательных организаций, реализующих программы среднего профессионального образования на базе основного общего образования с получением среднего образования

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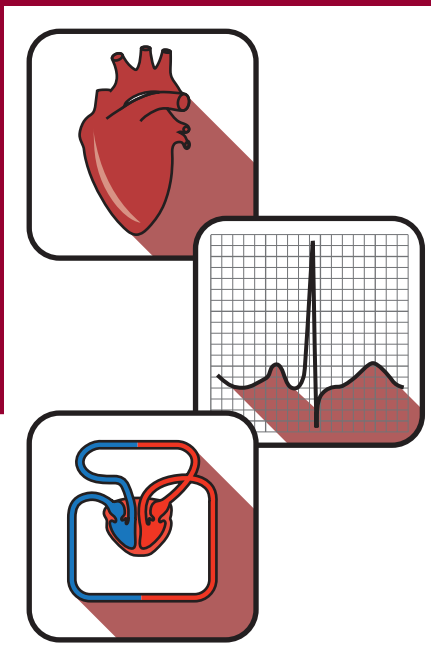


UNIT

III

BODY SYSTEMS: THE CARDIOVASCULAR SYSTEM

Module I. Learning to Read and Understand a Special Text — *The Heart*

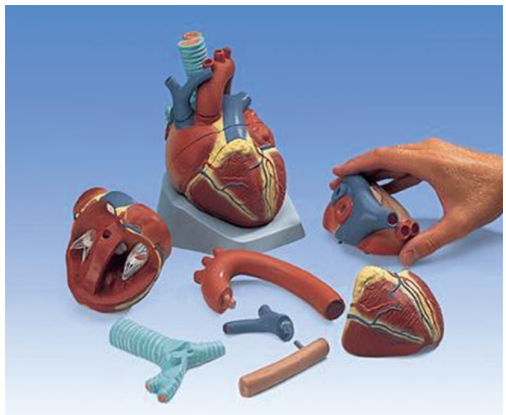
Module II. Learning to Translate
Pathology: Arrhythmias
Texts for translation

Module III. Learning to Communicate
Nursing care: Case History
Drug therapy
Laboratory diagnostics
Check your progress: seminar "Arrhythmias"

MODULE I. LEARNING TO READ AND UNDERSTAND A SPECIAL TEXT

Task 1.

The picture shows seven parts of the human heart. Can you name them?*



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

* Nucleus medical media 7-part Heart — Anatomical Model

Task 2.

Match each term on the left (1–8) with its definition on the right (a–h):

1) atrium	a) a serous membrane that lines the heart
2) endocardium	b) the outer covering of the heart
3) myocardium	c) sino-atrial node
4) pacemaker	d) a muscular wall
5) pericardium	e) the middle layer of the heart
6) septum	f) the lower chamber of the heart
7) valve	g) the upper chamber of the heart
8) ventricle	h) a device that controls the flow of blood

1) — g ; 2) — __; 3) — __; 4) — __; 5) — __; 6) — __; 7) — __; 8) — __.

Task 3.

A. *Read and translate the following international words:*

action, alcohol, artery, caffeine, circulation, control, defect, electrical, form, harmony, membrane, organism, pathogenic, problem, rhythm, shock, start, structure, toxic, vein.

B. *Match the words on the left (1–7) with their synonyms on the right (a–g):*

1) act	a) contraction
2) beat	b) force
3) inside	c) form
4) make up	d) internally
5) part	e) side
6) pump	f) through
7) via	g) work

1) — g ; 2) — __; 3) — __; 4) — __; 5) — __; 6) — __; 7) — __.

C. *Find in a dictionary and write the plural forms for the following nouns:*

atrium _____ bacterium _____ septum _____

D. *Translate the given sentences:*

1. The atria are the upper chambers of the heart.
2. The atria and ventricles beat in harmony.
3. Each atrium opens into the ventricle through a valve.
4. The left atrium of the heart receives blood from the pulmonary veins.
5. The heart consists of several structures: walls, septa, valves, a conducting system and a circulatory system.
6. The walls and septa are the muscular foundation for the four chambers.
7. Pathogenic bacteria enter the body by various routes.
8. Bacteria show a number of different shapes and forms.
9. Some bacteria secrete toxic proteins.
10. A bacterium is a microscopic organism. Most bacteria are unicellular.

Task 4. You are going to read a text about the human heart, which is the most important muscle in the body.

A. *Read the following text quickly and choose the best heading for it:*

1) The important muscle
2) A double pump
3) The structure of the heart

The heart is one of the most important organs in the human body. It is nothing but a muscular pump which pumps blood throughout the body. The wall of the heart is made up of three layers of tissue. A serous membrane, the pericardium, forms the outer covering

of the heart. The middle layer, the myocardium, is the heart muscle proper. This consists of specialized cardiac muscle fibres. Internally the heart is lined throughout with a serous membrane, the endocardium.

The heart works as two pumps. The right side pumps blood to the lungs, or the pulmonary circulation, at the same time the left side pumps blood to the rest of the body, or the systemic circulation. The right atrium contracts and forces the blood through the tricuspid valve into the right ventricle. The right ventricle contracts and pumps the blood through the pulmonary valve into the pulmonary artery. This takes the blood to the lungs where the blood releases carbon dioxide and receives a new supply of oxygen. The oxygen-rich blood returns to the left atrium, which contracts and pumps the blood out to the body via the aorta, which then branches to arteries that carry oxygen-rich blood to all parts of the body.

The action of the heart is effected by rhythmic contractions of the muscle, and the valves ensure that the blood is propelled in the right direction. The impulse that starts the heartbeat has its origin in an area of the right atrium — the sinoatrial (S-A) node.

B. *Look through the text again and find sentences about the functions of some parts of the heart (1–7).*

Example: The ***pericardium*** forms the outer covering of the heart.

1. The myocardium _____
2. The endocardium _____
3. The septum _____
4. The atrium _____
5. The ventricle _____
6. The valves _____
7. The sino-atrial node _____

C. *Join the two parts from the table to make complete sentences. (If you are not sure, you can find the sentences in the text.)*

1. The heart is nothing but a muscular pump	a) and receives a new supply of oxygen
2. The right side of the heart pumps blood to the lungs,	b) that carry oxygen-rich blood to all parts of the body
3. In the lungs blood releases carbon dioxide	c) which pumps blood throughout the body
4. The aorta branches to arteries	d) the S-A node

Окончание

5. The heartbeat starts in an area of the right atrium —	e) at the same time the left side pumps blood to the systemic circulation

1 — __; 2 — __; 3 — __; 4 — __; 5 — __.

D. *Translate the sentences.*

Task 5.

A. *Analyze the following pairs of sentences and put the right form of the predicate in them.*

Example:

1. to pump

A — The heart pump**s** blood around two circuits: the pulmonary and the systemic. (*The Active voice*)

B — Blood **is** pump**ed** out by thr right side of the heart to the lungs. (*The Passive voice*)

2. to compose

A — The wall of the heart _____ of three layers of tissue. (_____)

B — Three layers of tissue _____ the wall of the heart. (_____)

3. to divide

A — A thick septum _____ the cavity of the heart into two parts. (_____)

B — The cavity of the heart _____ into two parts by a thick septum. (_____)

4. to separate

A — The atria _____ from the ventricles by valves. (_____)

B — The valves _____ the atria from the ventricles. (_____)

5. to line

A — Internally the heart _____ with the endocardium. (_____)

B — The endocardium _____ the inside of the heart. (_____)

6. to receive

A — The atrium _____ blood from the veins. (_____)

B — In the atrium, the blood _____ from the veins. (_____)

7. to carry

A — The arteries _____ oxygen-rich blood to all parts of the body. (_____)

B — The oxygen-rich blood _____ to all parts of the body. (_____)

B. *Translate the sentences.*

Task 6.

A. *Fill in the gaps with the appropriate numerals according to the context of each sentence. (The first sentence is done for you.)*

1. The heart pumps blood round **two** circuits: the pulmonary and the systemic.
2. There are … chambers in the heart: two atria and two ventricles.
3. Each side of the heart contains … chambers: the atrium and the ventricle.
4. There are … valves in the heart: the mitral valve, the tricuspid valve, the pulmonary valve and the aortic valve.
5. There are … kinds of blood vessels: arteries, veins, and capillaries.
6. … layers of tissue form the heart wall: the pericardium forms the outer surface; the myocardium makes up the main part of the wall; the endocardium forms the inner surface.
7. The normal skeleton is made up of … bones. There are 86 pairs of bones. In addition, there are 34 single bones.

B. *Translate the sentences.*

Task 7.

Check your knowledge of the anatomy of the heart and complete the outline of the text, which will be a summary (a brief overview of the main points) *of the text "The Heart".*

The heart is a …

The wall of the heart is made up of …

a) the pericardium

b) _____

c) _____

The cavity of the heart is divided into …

Each side contains two chambers:

1) _____

2) _____

The heart works as two pumps.

The right side pumps the blood to …

The left side …

The heartbeat has its origin in an area …

MODULE II. LEARNING TO TRANSLATE

PATHOLOGY: ARRHYTHMIAS

Task 8.

A. *Look through the text and define its main ideas.*

ARRHYTHMIAS

The heart works ceaselessly from the first moment of life to the last one. Normally the heart contracts and relaxes between 70 and 80 times per minute at rest. The heart speeds up or slows down automatically in response to nerve signals from the brain. An arrhythmia is an abnormal rhythm of the heartbeat. There are various types, but all are due to some problem with the electrical conducting system of the heart. A temporary arrhythmia can be caused by alcohol, caffeine, or simply not getting a good night's sleep. Abnormal heart rhythms may occur in children and adults. Many of the arrhythmias in children do not require further treatment as they resolve spontaneously.

Some arrhythmias are more serious than others. Some are intermittent (come and go); others are permanent. Rapid rhythms are called tachycardia. Slow ones are called bradycardia. Arrhythmias can occur in either the atria or the ventricles. In general, ventricular arrhythmias are more serious than atrial ones because ventricular arrhythmias affect the heart's ability to pump blood to the body. There are different types of tachycardia that one can experience in one's life. The most dangerous type of rapid arrhythmia is ventricular fibrillation, in which ventricular contractions are rapid and chaotic. The heart muscle contracts only weakly and this is not enough to push blood out of the heart. Ventricular fibrillation can be reserved with an electrical defibrillator, a device that delivers a shock to the heart. The shock briefly stops the heart from beating, and when the heartbeat starts again the sinoatrial node is usually able to resume a normal beat.

B. *Read the text again and find the sentence which explains the role of the brain for the working of the heart.*

C. *Read the transcriptions of the following words, write down these words in the first column, and their meanings in the third column of the table.*

spelling of the word	transcription of the word	meaning of the word
arrhythmia	[ə'rɪðmiə]	аритмия
	['si:sləslɪ]	
	[ɔ:tə'mætɪk(ə)lɪ]	
	[rɪ'spɒns]	
	['vɛərɪəs]	
	['tɛmp(ə)r(ə)rɪ]	
	[kɔ:z]	
	['ædʌlt]	
	[rɪ'kwaɪə]	
	[rɪ'zɒlv]	
	[spɒn'teɪnɪəslɪ]	
	[ɪntə'mɪt(ə)nt]	
	['pɜ:m(ə)nənt]	
	[ə'fɛkt]	
	[ə'bɪlətɪ]	
	[ɪk'spɪərɪəns]	
	['deɪndʒ(ə)rəs]	
	[kən'trækʃ(ə)n]	
	[keɪ'ɒtɪk]	
	[rɪ'zə:v]	
	[dɪ'vaɪs]	
	[dɪ'lɪvə]	
	[rɪ'zju:m]	

D. *Look through the text "Arrhythmias" again and find the definitions of:*

1) arrhythmia _____
2) tachycardia _____
3) bradycardia _____
4) a defibrillator _____

E. *Find in the text "Arrhythmias" English equivalents for the following expressions:*

a) с первого до последнего момента жизни _____
b) в состоянии покоя _____
c) в ответ на нервные импульсы _____
d) проводящая система сердца _____

e) временная аритмия _____
f) дальнейшее лечение _____
g) проходит само по себе _____
h) нарушать способность сердца качать кровь _____
i) этого недостаточно _____
j) воздействовать разрядом _____
k) возобновлять нормальный ритм _____

Task 9.

Translate the following sentences with different meanings of the word ONE.

1. The heart is one of the most important organs in the human body.
2. It works ceaselessly from the first moment of life to the last one.
3. Rapid rhythms are called tachycardia. Slow ones are called bradycardia.
4. Ventricular arrhythmias are more serious than atrial ones.
5. There are different types of tachycardia that one can experience in one' life.
6. Under normal conditions, the left and right sides of the heart beat one after the other. This keeps the blood flow in one direction.
7. Most arrhythmias are harmless, and nearly everyone has an arrhythmia at one time or another.

Task 10.

A. *Choose the right form of the adjectives in the given sentences.*

1. The heart is one of the (*important — more important — most important*) organs in the human body.
2. Some arrhythmias are (*serious — more serious — the most serious*) than others.
3. Ventricular arrhythmias are (*serious — more serious — the most serious*) than atrial arrhythmias.
4. The (*dangerous — more dangerous — most dangerous*) type of rapid arrhythmia is ventricular fibrillation.

B. *Translate the sentences.*

Task 11.

A. *Analyze the following complex sentences from the text "Arrhythmias": underline its main parts — the subject and the*

predicate — and define the conjunction which connects the simple sentences.

Example: ***There are*** various *types* of arrhythmias, but all ***are due to*** some problem with the electrical conducting system of the heart.

1. Many of the arrhythmias in children do not require further treatment as they resolve spontaneously.
2. Ventricular arrhythmias are more serious than atrial ones because ventricular arrhythmias affect the heart's ability to pump blood to the body.
3. There are different types of tachycardia that one can experience in one' life.
4. The most dangerous type of rapid arrhythmia is ventricular fibrillation, in which ventricular contractions are rapid and chaotic.
5. The heart muscle contracts only weakly and this is not enough to push blood out of the heart.
6. Ventricular fibrillation can be reserved with an electrical defibrillator, a device that delivers a shock to the heart.
7. The shock briefly stops the heart from beating, and when the heartbeat starts again the sinoatrial node is usually able to resume a normal beat.

B. *Translate the sentences.*

Task 12.

Put the following sentences in the logical order to make a mini-text, which will be a summary (a brief overview of the main points) *of the text "Arrhythmias".*

1. An arrhythmia is an abnormal rhythm of the heartbeat.
2. The heart contracts and relaxes between 70 and 80 times per minute at rest.
3. The most dangerous type of rapid arrhythmia is ventricular fibrillation, which can be reserved with an electrical defibrillator.
4. Some arrhythmias are more serious than others.

Task 13.

A. *Now you are ready to translate the text "Arrhythmias". (If necessary, use a dictionary.)*

B. *Compare your translations and define the best one. Explain your choice.*

Task 14. **Mini-texts for translation:**

1. An arrhythmia occurs when electrical impulses, which direct and regulate heartbeats, do not function properly. Arrhythmias are common and usually harmless, but some are problematic. When an arrhythmia interferes with blood flow, it can damage the brain, lungs, and other vital organs.

2. Many types of arrhythmia have no symptoms. When symptoms are present, these may include palpitations or feeling a pause between heartbeats. More seriously there may be lightheadedness, shortness of breath, or chest pain. While most types of arrhythmia are not serious, some predispose a person to complications such as stroke or heart failure. Others may result in cardiac arrest.

3. Cardiac arrhythmias are often first detected by auscultation of the heartbeat with a stethoscope, or feeling for peripheral pulses. These cannot usually diagnose specific arrhythmia but can give a general indication of the heart rate. There are many classes of antiarrhythmic medications, with different mechanisms of action and many different individual drugs within these classes.

4. An arrhythmia can be silent and cause no symptoms. Some people with arrhythmias require no treatment. Treatment depends on the type and seriousness of arrhythmia. A variety of drugs are available to treat arrhythmias. Because everyone is different, it may take trials of several medications and doses to find the one that works best for you.

5. Many types of heart disease cause arrhythmia. Coronary disease may cause arrhythmia because coronary heart disease produces scar tissue in the heart. This scar tissue disrupts the transmission of signals which control the heart rhythm. Atherosclerosis is also a factor which may cause arrhythmia. Other medical conditions such as diabetes and high blood pressure are factors as well.

5. A newborn's heart beats about 140 times a minute. A child's heart can beat faster or slower than normal for many reasons. When children are active, their hearts will beat faster. When they are sleeping, their hearts will beat slower. Their heart rates can speed up and slow down as they breathe in and out. All of these changes are normal. Some children are born with heart defects that cause arrhythmias.

6. Common arrhythmia treatments include medicines, medical procedures, and surgery. Treatment is needed when an arrhythmia causes serious symptoms, such as dizziness, chest pain, or fainting, or when it increases chances of developing complications, such as heart failure, stroke, or sudden cardiac death.

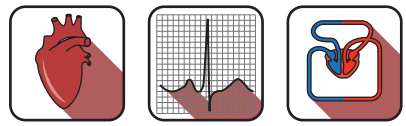
MODULE III. LEARNING TO COMMUNICATE

FOCUS ON VOCATION: PATIENTS WITH ARRHYTHMIA

I. INTRODUCTORY TALK

Task 15. Pair Work. *Ask each other the following questions:*

1. Have you ever had irregular heart rate?
2. If you have, describe your condition.
3. Can you feel you pulse? How do you do it?



II. NURSING CARE OF PATIENTS WITH ARRHYTHMIAS

Task 16.

A. *Choose the field of medicine which deals with arrhythmias:*

a) anesthesiology b) cardiology c) nephrology d) ophthalmology

B. *Read the case history and mark the statements given below which are true:*

Case history. An 18-year-old student Michael Grey with no past medical history presented at emergency department for persistent tachycardia. Two days prior to admission, he had an episode of atypical left sided chest discomfort that lasted less than 5 minutes and resolved spontaneously. The patient complains of palpitations and shortness of breath. He has no significant family history of heart disease and denied any alcohol or drug abuse. Physical examination revealed no abnormalities with exception of a fast regular pulse (185 beats/min). An ECG was taken as part of a routine checkup. A diagnosis of ventricular tachycardia was made.

1. An 8-year-old Michael Grey presented to emergency department for persistent tachycardia.
2. He had regular episodes of discomfort in the left side of the chest.
3. The patient complains of palpitations and shortness of breath.
4. The patient denied any alcohol or drug abuse.
5. A diagnosis of atrial arrhythmia was made.

C. *Match the English word combinations on the left (1–6) with their translations on the right (A–F).*

1) atypical pain in the chest	a) обычное обследование
2) drug abuse	b) атипичная боль в груди
3) emergency department	c) злоупотребление наркотиками
4) palpitations	d) отделение неотложной помощи
5) past medical history	e) проходит само по себе
6) resolve spontaneously	f) сильное сердцебиение
7) shortness of breath	g) поставить диагноз
8) a routine check up	h) анамнез, история болезни
9) to make a diagnosis	i) одышка

1) — __; 2) — __; 3) — __; 4) — __; 5) — __; 6) — __; 7) — __; 8) — __; 9) — __.

D. *Answer the questions a nurse typically asks a patient.*

1. What's your name?
2. How old are you?
3. What brings you in today?
4. What are your symptoms?
5. When did it start?
6. Do you have a family history of heart problems?
7. Do you take alcohol or recreational drugs?

Task 17.

A. *Pair work (Mini-role play)* A NURSE TALKS TO A PATIENT

Student 1 **acts as an emergency nurse** who asks the patient questions before the doctor's arrival (use the questions in task 16D).

Student 2 **acts as a patient** and answers the questions a nurse asks him before the doctor's arrival (use information from the case history).

Student 1	Student 2
I need to fill in your medical record. Tell me … Now I'd like to know some details of your condition. Does any of your relatives suffer from heart problems? I want to know about your lifestyle …	My name is … As for my present condition, I can say that … I think none of my family … I am not sure but … I try to keep fit …

B. *Pair-work (Mini-role play)* A NURSE TELLS THE PATIENT ABOUT TACHYCARDIA

Student 1 **acts as a patient** who questions an emergency nurse about his disorder.

Student 2 **acts as an emergency nurse** who tells the patient about tachycardia (use information from the text in tasks 8, 14).

Student 1	Student 2
May I ask you a few questions about … I don't know anything about … Is it dangerous?	You shouldn't worry … I'll tell you some facts about … You should pay attention to …

III. DRUG THERAPY FOR ARRHYTHMIAS

Task 18.

A. *Do you know what group of medicines is used to treat ventricular tachycardia:*

a) beta-blockers; b) anti-arrhythmic drugs; c) anticoagulants?

B. *Look through the following passage and find the sentence which confirms your answer.*

Amiodarone is an antiarrhythmic medication that affects the rhythm of heartbeats. Amiodarone is used to help keep the heart beating normally in people with life-threatening heart rhythm disorders. Amiodarone is used to treat ventricular tachycardia or ventricular fibrillation.

Amiodarone is for use only in life-threatening situations. This medication has the potential to cause side effects that could be fatal. It should be received in a hospital setting. This medication should not be used if the person is allergic to Amiodarone or iodine, or if he or she has certain heart conditions or a history of slow heart beats. This medication should be taken exactly as it was prescribed. Usual Adult Dose for Arrhythmias:

1. Initial dose (IV): 1000 mg over the first 24 hours of therapy, delivered by the following infusion regimen: 150 mg over the first 10 minutes (15 mg/min), followed by 360 mg over the next 6 hours (1 mg/min).

2. Maintenance infusion: 540 mg over the remaining 18 hours (0.5 mg/min).

Amiodarone may impair the thinking abilities or reactions. Side effects included feeling dizzy or tired, nausea, vomiting, stomach pain, constipation, loss of appetite, sleep problems (insomnia), weakness, lack of coordination; or warmth, tingling, or redness under the skin.

Many drugs can interact with Amiodarone. It should be taken with precautions if the patient is using antibiotics, antidepressants, diuretics, insulin or diabetes medications, heart rhythm medications, heart or blood pressure medications, beta-blockers and others.

Store Amiodarone at room temperature away from heat, moisture, and light.

C. *Fill in the table to make a short description of the drug according to the text.*

Name of the drug	
Medicinal form	
Class of the drug	
Indications	
Contraindications	
Effect on the body	
Timing and dosage	
Route of administration	
Side effects	
Drug interactions	
Storage conditions	

D. *Find in the text the definition of anti-arrhythmic drug.*

E. *Mark the following statements TRUE or FALSE.*

1. Amiodarone is a medication that affects the heart rhythm.	
2. Amiodarone is used to treat ventricular bradycardia.	
3. Amiodarone causes fatal side effects.	
4. Amiodarone should not be used if the person is allergic to iodine.	
5. Amiodarone may not impair the thinking abilities or reactions.	
6. Side effects are dizziness or tiredness, nausea, stomach discomfort, sleeping problems.	
7. Heart and blood pressure medications can interact with Amiodarone.	
8. Store Amiodarone in a cool place away from heat, moisture, and light.	

F. *Read the passage again and find answers to the following questions*:

1. Is Amiodarone an antiarrhythmic drug?

2. Is Amiodarone used for treatment of ventricular tachycardia?

3. Should Amiodarone be taken if the patient has a history of slow heart beats?

4. Can you name any other antiarrhythmic drugs?

5. What are the main side effects of Amiodarone?

6. What other drugs does Amiodarone interact with?

7. What are the storage conditions of Amiodarone?

8. What abilities may Amiodarone impair?

G. *Pair work (Mini-role play)* AT THE CHEMIST'S

Student 1 **acts as Michael Grey,** who has come to the Chemist's to buy an antiarrhythmic drug (use some questions in task 18F).

Student 2 **acts as a chemist** and answers the questions of a customer (use the information in the passage — task 18B).

Student 1	Student 2
Can you advise me … Is this drug safe? What special instructions should I know about?	I can advise you … All drugs have side effects, but … Read and follow the instructions carefully. Pay special attention to the dose. It is essential to avoid …

IV. LABORATORY DIAGNOSTICS

Task 19.

A. *Read the text and say what the standard clinical test for diagnosing arrhythmias is.*

Several tests can help your doctor diagnose an arrhythmia. Identifying, or documenting an arrhythmia, requires recording the heart's activity using an electrocardiogram (ECG or EKG). To conduct an ECG, the healthcare professional places small patches or stickers called electrodes on different parts of the body. One is put on each arm and leg and several across the chest. They do not hurt.

An electrocardiogram is a simple, painless test that records the heart's electrical activity. To understand this test, it helps to understand how the heart works. With each heartbeat, an electrical signal spreads from the top of the heart to the bottom. As it travels, the signal causes the heart to contract and pump blood. The process repeats with each new heartbeat.

The heart's electrical signals set the rhythm of the heartbeat. An EKG shows:

- How fast your heart is beating
- Whether the rhythm of your heartbeat is steady or irregular
- The strength and timing of electrical signals as they pass through each part of your heart.

Three major waves of electric signals appear on the ECG. Each one shows a different part of the heartbeat.

- The first wave is called the P wave. It records the electrical activity of the atria.
- The second and largest wave is the QRS wave. It records the electrical activity of the ventricles.
- The third wave is the T wave. It records the heart's return to the resting state.

Doctors study the shape and size of the waves, the time between waves and the rate and regularity of beating. This tells a lot about the heart and its rhythm.

An ECG is the standard clinical tool for diagnosing arrhythmias. It records the relative timing of atrial and ventricular electrical events. It can be used to measure how long it takes for impulses to travel through the atria (the heart's upper chambers), the atrioventricular (AV) conduction system and the ventricles (the heart's two lower, pumping chambers). Because of the fleeting nature of arrhythmias, a person who complains of symptoms that suggest arrhythmia may often have an ECG that appears normal. Electrocardiographic techniques are passive; they can only record an arrhythmia if it occurs spontaneously while the ECG is being taken.

B. *Read the text again and find English equivalents for the following phrases:*

1) аритмия требует регистрации сердечной деятельности
2) изучать форму и размер волн
3) частота и регулярность сердцебиения
4) из-за скоротечного характера
5) предсердно-желудочковая система проводимости

C. *Answer the following questions:*

1. What does an EKG show?
2. What waves of electric signals do you know?

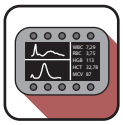
D. Pair work *(Mini-role play)* AN ELECTROCARDIOGRAM

Student 1 **acts as a patient** and asks a doctor some questions about the procedure.

Student 2 **acts as a doctor** and answers a patient's questions (use the information in the passage — task 19).

Student 1	Student 2
What is an electrocardiogram? Why is it done? What can you tell me about the procedure? Is it harmful? Why may a person who complains of symptoms that suggest arrhythmia have an ECG that appears normal?	An electrocardiogram is … It helps to understand how … An electrocardiogram is a simple, painless test …

V. CHECK YOUR PROGRESS



Task 20. Group work *(Mini-role play)*

SEMINAR: ARRHYTHMIA

Your group is attending a seminar devoted to the problems of treatment and prevention of arrhythmia. Adam Wilson, a cardiologist from California University College of Medicine, asks students questions about the types, diagnosis, symptoms, treatment and ways of prevention of arrhythmia.

Student 1 **acts as a teacher** who has invited the specialist to the seminar.

Introduction: Welcome, everyone. Today we are going to look at one of the most common medical problem in the world — arrhythmia. Our guest is … He will …

Closing: Our seminar is over. It was very useful and interesting. Thanks for participation.

Student 2 **acts as Adam Wilson, a physician** who asks the students about the types, diagnosis, symptoms, treatment and ways of prevention of arrhythmia. (Use the information in tasks 8, 14, 18F, 19.)

Students 3, 4, 5 **act as seminar participants and answer questions** about the types, diagnosis, symptoms, treatment and ways of prevention of arrhythmia. (Use the information in tasks 8, 14, 18B, 19.)

1. To ask questions use:	2. To answer questions use:
Can you tell us about … I'd like to ask you about … My question is … Could you please give us more details about … What could you recommend …?	I'll be glad to answer your questions. It is known that … I'd like to stress … It's important to remember that … It's useful to know that … I'd like to give some recommendations.