Class 3

I. Vocabulary training

Task 1. Learn the words and word combinations !!!

relationship - взаимоотношения
to produce – (здесь) выполнять
picture – снимок, изображение
to give diagnostic comments – предоставить диагностический комментарий
to screen – получить изображение, вывести на монитор
to evaluate - оценить
severity – тяжесть (например, заболевания)
to monitor – отслеживать, наблюдать
response to smth – реакция (ответ) на что-либо
urine - моча
cerebrospinal fluid – спинномозговая жидкость
imaging – получение изображения, сканирование, визуализация
ultrasound - ультразвук
to observe – наблюдать, изучать
to equip – оборудовать, оснащать
a tool - инструмент
to remove – удалять
to measure - измерять
sign – признак, показатель
anomaly – аномалия, нарушение
to result in – приводить к чему-либо

Task 2. Translate into Russian

to screen the tissue, to measure the blood pressure, to evaluate complexity, to observe interaction, to involve visualization, to give diagnostic comments on the picture, to equip with CT scans, to accompany changes, to result in disease, to produce MRI pictures, to monitor ultrasounds, signs of interaction, response to the used technique, severity of the disease, to remove a sample of the tissue with a tool, to use imaging

Task 3. Read and translate the text. While reading, analyze the examples of Participles

Laboratory diagnostics

A specialist working in a diagnostic laboratory is integrated in the relationship between patient and the doctors. He does not only produce X-ray, CT- and MR-pictures, but also gives his diagnostic comments.

Many tests are specialized for a particular disease or group of related diseases. Tests are performed for screening, diagnosing a disease, evaluating the severity of a disease and monitoring the response to treatment. Medical tests are generally divided into six categories:

1. Analysis of body fluids most often consists of tests of the blood, urine, and cerebrospinal fluid. Less often, fluids such as sweat and saliva and gastric juices are analyzed.

2. Imaging consists of tests that provide a picture of the inside of the body. They include X-ray, ultrasound scans and radioisotope scans such as computed tomography (CT) scans and magnetic resonance imaging (MRI).

3. Endoscopy is the use of a viewing tube to observe the inside of body organs or cavities. The tip of the endoscope is usually equipped with a light and a camera, so images can be seen on a television monitor. Tools are often passed through a channel in the endoscope. One type of tool is used to cut and remove tissue samples.

4. Measurement of body functions often involves recording and analyzing the activity of various body organs. For example, electrical activity of the heart is measured with electrocardiography (ECG), and electrical activity of the brain is measured with electroencephalography (EEG).

5. Biopsy involves removing tissue samples and examining them, usually with a microscope. The examination often focuses on finding abnormal cells that might provide signs of inflammation or a disease, such as cancer. Tissues that are commonly examined include skin, breast, lung, liver, kidney, and bone.

6. Analysis of genetic material usually involves testing cells from skin, blood, or bone marrow. Genetic testing consists of an examination for anomalies of chromosomes, genes, or both. Examination of genes includes analysis of DNA.

In the nearest future the integration of laboratory diagnostics and molecular biology will result in individual treatment for a particular patient based on specific diagnostic test.

To diagnose a disease one needs more than just a clinical picture (signs and symptoms). Both instrumental and laboratory investigations are very helpful. Nowadays a set of highly sensitive tests is developed for almost every disease.

To diagnose an acute myocardial infarction (MI) cardiologists evaluate the electrocardiogram (ECG) readings and clinical findings. However, when the clinical picture and the ECG show no specific changes, verification of the diagnosis may rely on the detection of cardiac enzymes. They serve as biomarkers. The elevation of cardiac enzyme levels may confirm the diagnosis.

Another example is atherosclerosis diagnosing. Atherosclerosis is characterized by a local inflammatory process which is accompanied by a low-grade systemic response. Scientists have found out a number of biomarkers but their use is limited due to complicated methodology and high cost. C-reactive protein is currently the most commonly used marker of inflammation. It is a blood plasma protein which belongs to the acute phase proteins elevating in case of inflammation. The measurement procedure is well standardized and automated, and high sensitivity assays are available. Computed tomographic (CT) measurement of coronary artery calcium (CAC) also helps to predict the risk of atherosclerosis as it demonstrates the atherosclerotic plaque burden.

Respiratory diseases with obscure clinical picture can also be diagnosed with proteomic analyses. Investigation of proteins in the exhaled condensate showed

significant difference in healthy persons and in patients with pneumonia, chronic obstructive pulmonary disease and lung cancer. High concentration of peroxiredoxin is due to severe oxidative stress in obstructive pulmonary disease; high levels of acute-phase and hypoxia proteins are the signs of pneumonia; α-subunit of hemoglobin, nuclear casein, high mobility group protein and lactoferrin are found in patients with lung cancer.

A number of tests are used to reveal the disturbances of gastric function. One of them is the comparison of the amount of HCl produced by the stomach under basal (resting), fasting conditions without visual or olfactory stimuli and after maximal stimulation. Pentagastrin (a synthetic pentapeptide) is used as a stimulus for HCl and pepsin secretion. It is injected subcutaneously and the maximum acid output (MAO) is evaluated in samples. Anacidity is seen in patients with anemia, hypothyroidism, and in some patients with carcinoma of the stomach. Low values are found in gastric carcinoma, benign gastric ulcers, in females and in aging persons. *Hyperacidity* is seen in patients with duodenal ulcer

Task 4. Complete the table of morphological forms

Существительное	**Прилагательное/ причастие**	**Глагол**
		to produce
	diagnostic	
		to evaluate
severity		
		to monitor
	responsive	
		to observe
equipment		
		to remove
measurement		
	special	

Task 5. Answer the following questions: 1. What are the tasks of a diagnostic laboratory specialist? 2. Are diagnostic tests similar for all the diseases? 3. Why do specialists perform laboratory tests? 4. What body fluids may be analyzed? 5. What types of imaging may be utilized for the diagnostics. 6. What parts does an endoscope contain? 7. How can body functions be evaluated? 8. What are the aims of biopsy? 9. What samples can be taken for the genetic testing?

II. Grammar training. Perfect tenses

Perfect Tenses используются для обозначения**:**

1. Действий, имеющих результат на указанный момент:

*Students **have** just **passed** the exams. – Студенты только что сдали экзамены*

2. Действия, отражающие наличие того или иного личного (или иного) опыта:

***Have** you ever **taken** this drug? – Ты когда-нибудь принимал это лекарство?*

Маркерами этих времён являются:

Already – уже, ever - когда-либо, never – никогда, just - только что , lately - недавно (за последние дни или недели), recently - недавно (за последние месяцы или годы), up to (till) now - до сих пор; yet – ещё; so far -до сих пор, пока; by – к (какому-то моменту).

Кроме того, в предложении может быть указание на действие, которое было совершено до начала другого действия в прошлом или после завершения другого действия. В этом случае, в предложении используются союзы before, after. Например – I went home only after I have completed my work. Если же несколько действий перечисляются как последовательность и разделены запятой и/или союзом and, необходимо описывать их в одном времени – I completed my work and went home.

Построение предложений:

Present Perfect:

Утверждение: Подлежащее + have/has + V_3

Вопрос: Have/has + подлежащее + V_3

Отрицание: Подлежащее + have/has + not + V_3

Past Perfect:

Утверждение: Подлежащее + had + V_3

Вопрос: Had + подлежащее + V_3

Отрицание: Подлежащее + had + not + V_3

Future Perfect:

Утверждение: Подлежащее + will have + V_3

Вопрос: Will + подлежащее + have +V_3

Отрицание: Подлежащее + will + not + have+ V_3

Task 6: Put the verbs into the Present Perfect tense.

1. I ... (to have) already breakfast. 2. Alice is out. She just (go) to the post-office. 3. I'm checking the work. He (to make) a lot of mistakes in it. 4. Finally, they (get) married! 5. The parents just ….(ask) his son about his progress at the University. 6. I …..(visit) ten countries so far. 7. Our lecturer is very kind and she just (promise) to put good marks to all of us. 8. I …..(not be) home since last Sunday. 9. I …….(never take) any medications. 9. The baby recently….. (to develop) rickets due to Vitamin D deficiency. 10. He ……(not answer) his mother's letter yet. 11. I hope, the students ... (to learn) the words already

Task 7. Put the verbs into the Past Perfect or Future Perfect tense.

1. He went to meet his friends after he ... (to do) his homework. 2. By 8 o'clock tomorrow the rain ... (to stop). 3. Alice was late because she ... (to miss) the bus. 4. He ... (to work) at the factory before he entered the college. 5. Physicians …. (not prescribe) antibiotics by 1929. 6. By 1747, the Scottish

surgeon James Lind ….. (to discover) beneficial properties of citrus foods to prevent scurvy. 7. The students …..(to finish) these experiments by the next class. 8. I ….(to leave) my parents by the time I was 16. 9. After everybody (leave), he began packing hurriedly. 10. They (write) the theses by the coming year. 11. He (finish) his work by 10 p.m. yesterday. 12. I (examine) them by 5 o'clock p.m. yesterday. 13. He went to meet his friends after he (do) the laboratory work. 14. The doctor (examine) this patient before we came in. 15. The students (finish) their laboratory work by the next class. 16. The doctor noticed that the nurse (not to make) the injections.

Д/з – выучить лексический минимум