



НЗРАУ

**Методичні рекомендації з професійно-орієнтованої
лексики для студентів спеціальності
«Лабораторна діагностика»**

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ
КАФЕДРА ІНОЗЕМНИХ МОВ

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Англійська мова.

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Видання містить методичні рекомендації щодо роботи з професійно-орієнтованої лексики для студентів спеціальності «Лабораторна діагностика» на практичних заняттях та під час самостійного опанування матеріалу здобувачами вищої освіти першого року навчання з рівнем володіння мови на рівень А2- В1+. Тематичне наповнення відповідає навчальному плану та робочій програмі. Метою даних методичних рекомендацій є запропонувати додатковий до основного підручника матеріал, який включає лексику за фахом. Видання може бути корисними для здобувачів вищої освіти денної, заочної, дистанційної форм навчання, викладачів англійської мови.

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ПЕРЕДМОВА

Видання містить, практичні завдання, для аудиторної роботи та під час самостійного опанування матеріалу. Видання може бути використане як додатковий навчальний матеріал до основного підручника з дисципліни «Англійська мова» для студентів спеціальності «Лабораторна діагностика». Методичні рекомендації складаються з 6 структурованих розділів, згідно навчальній програмі, містять матеріал з тематики професійної діяльності майбутнього спеціаліста галузі. Кожен розділ надає чітко визначені мовні структури і словниковий запас. Представлено основні завдання та види діяльності на розвиток мовленнєвої активності: Learn new words and phrases. Practice pronunciation. Repeat after your teacher. Vocabulary. Write a summary. Make up sentences. У виданні є розділ з текстами для додаткового читання. Формування компетентностей з англійської мови під час навчання студентів в університеті є важливим для отримання знань та вмінь, які забезпечать успішність майбутніх фахівців у реальному суспільстві. Науково-технічні зміни принесли потужний потік інформації який неможливо подолати без володіння англійською мовою, виникла потреба у формуванні нових принципів викладання мови.

UNIT 1

Clinical diagnostic laboratory. Types of clinical laboratories



Activity 1. Learn new words and phrases. Practice pronunciation. Repeat after your teacher.

Vocabulary

clinical data	клінічні дані
general type laboratories	лабораторії загального типу
specialized laboratories	спеціалізовані лабораторії
clinical laboratory studies	клінічні лабораторні дослідження
laboratory report	лабораторний звіт
healthcare facility	медичний заклад
capacity	здатність
determination	визначення
analytical accuracy	аналітична точність
implementation	впровадження
the table of elements	таблиця елементів
urgent	терміновий
desiccators	сушильні шафи
microscope slides	предметне скло мікроскопа
test tubes	пробірки

Activity 2. Read the text and translate it.

Clinical laboratory diagnostics is a medical diagnostic specialty, consisting of a set of in vitro studies of the biomaterial of the human body, based on the use of hematological, general clinical, parasitic, biochemical, immunological, serological, molecular biological, bacteriological, genetic, cytological, toxicological, virological methods, comparing the results of these methods with clinical data and formulating a laboratory report. Clinical diagnostic laboratories are divided into two large groups:

- general type laboratories;
- specialized laboratories.

The structure of the laboratory service basically corresponds to the needs of healthcare institutions in laboratory diagnostics and monitoring of the therapy of patients, ensuring the daily requests of the attending physicians in the most common studies, their urgent implementation in urgent practice (express laboratories), as well as mass production of the most complex research. This is done by specialized laboratories: hematological, cytological, biochemical, immunological .

Clinical diagnostic laboratory is a diagnostic subdivision of a medical institution and is created as a department. Clinical diagnostic laboratory, regardless of subordination and form of ownership, must have a certificate for the chosen type of activity.

The main tasks of the Clinical diagnostic laboratory are:

- conducting clinical laboratory studies in accordance with the profile of the healthcare facility (general clinical, hematological, immunological, cytological, biochemical, microbiological and others with high analytical and diagnostic reliability) in the amount according to the declared nomenclature of studies during the accreditation of the medical facility in accordance with the license of the healthcare facility;
- the volume of research performed should not be lower than the minimum volume recommended for a medical facility of a given capacity;

- introduction of progressive forms of work, new research methods with high analytical accuracy and diagnostic reliability;
- improving the quality of laboratory research through the systematic implementation of in-laboratory quality control of laboratory research.

Activity 3. Continue the sentences.

Clinical laboratory diagnostics _____

The structure of the laboratory service _____

The main tasks of the clinical diagnostic laboratories are _____

Clinical diagnostic laboratories are _____

Activity 4. Fill in the gaps with the correct answers (A-D).

Laboratory glassware refers to a variety of 1)..... used in scientific work, and traditionally made of 2)..... Glass can be blown, bent, cut, molded, and formed into many sizes and 3)....., and is therefore common in chemistry, biology, and 4)..... laboratories. Many laboratories have training programs to demonstrate how glassware is used and to alert first-time users to the 5)..... hazards involved with using glassware.

1.	a. instruments	b. equipment	c. means	d. rules
2.	a. plastic	b. iron	c. metal	d. glass
3.	a. width	b. shapes	c. length	d. forms
4.	a. physical	b. chemical	c. analytical	d. medical
5.	a. safety	b. danger	c. safe	d. dangerous

Activity 5. Match words (A) with their definitions (B)

A	B
Beakers	are thin strips used to hold items under a microscope.
Flasks	are narrow-necked glass containers, typically

	conical or spherical, used in a laboratory to hold reagents or samples
Jars	are cylindrical containers with wide openings that may be sealed
Test tubes	are used to dispense precise amounts of liquid reagents.
Desiccators	of glass construction are used to dry materials or keep material dry.
Petri dishes	are simple cylindrical shaped containers used to hold reagents or samples.
Burettes	are used by chemists to hold, mix, or heat small quantities of solid or liquid chemicals, especially for qualitative experiments and assays
Microscope slides	glass are used to culture living cells.

Activity 6. Write a summary about clinical diagnostic laboratory. (6-10 sentences)

UNIT 2



What is a Medical and Clinical Laboratory Technician?

Activity 1. Learn new words and phrases. Practice pronunciation. Repeat after your teacher.

Vocabulary

laboratory technician	лаборант
samples	зразки
abnormalities	відхилення

laboratory technologist	лаборант-технік
prevent	запобігти
body fluids	рідини організму
transfusions	переливання
sophisticated	складний
decipher	розшифрувати
laboratory assistants	лаборанти
blood counts	кількість крові
specimen	примірник

Activity 2. Read the text and translate it.

A medical and clinical laboratory technician is someone who conducts lab tests ordered by doctors and other healthcare providers. Working with laboratory microscopes, machines, and computers, they examine human tissue samples and bodily fluids in order to find out abnormalities and to determine diagnoses. A laboratory technician's work is very important to a patient's healthcare.

What is the difference between a technologist and a technician? A four-year medical laboratory degree program is needed to become a medical laboratory technologist. A similar two-year certificate qualifies the graduate to work as a medical laboratory technician. Technologists generally earn more than technicians do and have more opportunities for advancement.

Medical and clinical laboratory technicians are the people who perform routine medical laboratory tests, giving physicians the information necessary for diagnosing, treatment, and preventing disease. When examining and analyzing body fluids and cells, they can determine the chemical content of fluids, look for bacteria, parasites, and other microorganisms. They can look for abnormal cells in blood and body fluids, match blood for transfusions, and test for drug levels in blood.

Medical and clinical laboratory technicians use microscopes, cell counters, and other sophisticated lab equipment. They also use computerized apparatus and automated equipment that can perform a lot of tests simultaneously. After test is done

and a specimen is examined, they analyze the results and deliver those results to the physician.

Here are some of the duties performed by a medical and clinical laboratory technician:

- set up, maintain, and clean medical laboratory equipment;
- collect blood or tissue samples from patients;
- test and analyze bodily fluids, such as blood and urine, by using a microscope or automatic analyzer;
- examine cells to locate any abnormalities;
- define and decipher abnormalities or diseases;
- enter findings into computer, and record test data to issue reports;
- carry out blood tests for blood transfusion purposes and perform blood counts;
- prepare tissue samples for examination by pathologists;
- when abnormal cells are found, consult with a pathologist to determine a final diagnosis;
- supervise other technicians and laboratory assistants.

Activity 3. Answer the questions.

1. What does a medical and clinical laboratory technician do?
2. What is the difference between a technologist and a technician?
3. What do clinical laboratory technicians use?
4. Name some of the duties of a medical and clinical laboratory technician?

Activity 4. Translate into English.

Розшифрувати, переливання крові, збирати зразки, запобігти хворобі, рідини організму, складний, примірник, лаборант, медичні працівники, звичайні

медичні лабораторні випробування, кров і сеча, дані тестів, остаточний діагноз.

Activity 5. Make up sentences of your own with given word combinations.

1. human tissue samples _____
2. determine the chemical content _____
3. medical laboratory tests _____
4. technicians use microscopes _____
5. analyze the results _____

Activity 6. Continue the sentences.

1. Clinical laboratory technician is someone who conducts _____
2. In order to become a medical laboratory technologist one needs _____
3. Laboratory technician can detect the chemical content of fluids by _____
4. After testing and examining a specimen a technician _____
5. Medical and clinical laboratory technicians supervise _____

Activity 7. Write a summary about the work of laboratory technician. (6-10 sentences)

UNIT 3

Blood test. Making of diagnostic decision



Activity 1. Learn new words and phrases. Practice pronunciation. Repeat after your teacher.

Vocabulary

blood test	аналіз крові
sample	зразок
fingerprick	голка для проколювання пальця
hypodermic needle	голка для підшкірних ін'єкцій
blood panels	клінічний аналіз крові
complete blood count	загальний клінічний аналіз крові
drug abuse	залежність
impressive array	кількість, яка вражає
myriad	багаточисельний (десять тисяч)
via	через

Activity 2. Read the text and translate it.

A blood test is a laboratory analysis performed on a blood sample that is usually extracted from a vein in the arm using a hypodermic needle or via finger prick. Multiple tests for specific blood components, such as a glucose test or a cholesterol test, are often grouped together into one test panel called a blood panel or blood work. Blood tests are often used in health care to determine physiological and biochemical states, such as disease, mineral content,

pharmaceutical drug effectiveness, and organ function. Typical clinical blood panels include a basic metabolic panel or a complete blood count. Blood tests are also used in drug tests to detect drug abuse.

The use of clinical laboratory test results in diagnostic decision making is an integral part of clinical medicine. The menu of laboratory tests available to clinicians constitutes an impressive array that has expanded exponentially since 1920 when the first useful test for the quantification of serum glucose concentration was devised by Folin and Wu. The modern list of tests offered by one major reference laboratory includes nearly 3,000 analytes, which does not include the additional array of more commonly ordered tests (eg, complete blood count (CBC), electrolytes (sodium, potassium, chloride, carbon dioxide), thyroid stimulating hormone (TSH), glucose, etc.) routinely performed on site by most hospital based clinical laboratories. Despite this ever-expanding plethora of useful and reliable clinical laboratory tests for diagnosing and monitoring the myriad of diseases effecting mankind, the recent emphasis on reducing health care costs and the emergence of managed care organizations led to efforts to reduce the abuse (over-ordering) and misuse (eg, ordering the right test for the wrong purpose or vice versa) of these tests.

Activity 3. Translate into English.

Клінічний аналіз крові; залежність; біохімічний стан; концентрація глюкози в сироватці; гормон, що стимулює щитовидну залозу; на базі лікарні, список тестів.

Activity 4. Translate into Ukrainian.

Vein in the arm, physiological state, additional array, sodium, potassium, chloride, carbon dioxide, reliable, mankind, efforts, wrong purpose.

Activity 5. Make up sentences with given word combinations.

1. pharmaceutical drug effectiveness_____

2. multiple tests _____
3. to detect drug abuse _____
4. hypodermic needle _____
5. via finger prick _____

Activity 6. Read the dialogue and make up similar (pair work).

DIALOGUE

A: My doctor said that I needed a blood test.

B: I can help you with that. Just have a seat and roll up your left sleeve.

A: What are you taking my blood for?

B: Your doctor has requested a check of your white blood count.

A: What information does that give him?

B: If your white blood cell count is off, it could signal an infection somewhere in your body.

A: Is a blood test painful?

B: I am putting a tourniquet on your arm to plump up the vein. It will only feel like a little pin prick.

A: My God, that hurts!

B: That was it! Thank you for coming in today.

Activity 7. Study the information from the table and discuss in class.

WHAT YOUR BLOOD TEST RESULTS MEAN

Ever wonder what your doc is looking for when he takes all those vials?

	Red Blood Cell (RBC) Count	White Blood Cell (WBC) Count	Platelet Count
HEALTHY RANGE	4.2 million to 5.4 million per microliter (mcL)	4,500 to 10,000 per mcL	150,000 to 400,000 per mcL
TOO-HIGH NUMBERS COULD BE DUE TO...	Smoking; dehydration; congenital heart disease.	An infection; an inflammatory disease, such as rheumatoid arthritis or allergy; leukemia; severe stress; tissue damage, like a burn.	Inflammatory bowel disease; rheumatoid arthritis; cancer.
TOO-LOW NUMBERS COULD BE DUE TO...	Deficiencies in nutrients, such as iron, copper, folate or vitamin B ₆ or B ₁₂ ; pregnancy; blood cancer.	An autoimmune disease, such as lupus.	Chronic bleeding, as from an ulcer; a viral illness, such as mononucleosis or HIV.



Health

UNIT 4

Biochemical analysis



Activity 1. Learn new words and phrases. Practice pronunciation. Repeat after your teacher.

Vocabulary

magnesium	магній
creatinine	креатинін
urea	сечовина
glucose (fasting)	глюкоза (натще)
consumption	споживання
extracted	вилучений
obtained	отриманий
tolerance	терпимість
processed	оброблений

Activity 2. Read the text and translate it.

A basic metabolic panel measures sodium, potassium, chloride, bicarbonate, blood urea nitrogen magnesium, creatinine, glucose, and sometimes calcium. Tests that focus on cholesterol levels can determine LDL and HDL cholesterol levels, as well as triglyceride levels. Some tests, such as those that measure glucose or a lipid profile, require fasting (or no food consumption) eight to twelve hours prior to the drawing of the blood sample. For the majority of tests, blood is usually obtained from the patient's vein. Other specialized tests, such as the arterial blood gas test, require blood extracted from an artery. Blood gas analysis of arterial blood is primarily used to monitor carbon dioxide and oxygen levels related to pulmonary function, but is also used to measure blood pH and bicarbonate levels for certain metabolic conditions. While the regular glucose test is taken at a certain point in time, the glucose tolerance test involves repeated testing to determine the rate at which glucose is processed by the body.

Activity 3. Continue the sentences.

1. Tests measure glucose requires _____
2. Some specialized tests requires _____

3. Blood gas analysis is used _____

Activity 4. Study the normal ranges and discuss in class

Blood tests results should always be interpreted using the ranges provided by the laboratory that performed the test. Example ranges are shown below.

Test	Low	High	Unit
Sodium (Na)	134	145	mmol/L
Potassium (K)	3.5	5.0	mmol/L
Urea	2.5	6.4	mmol/L
Urea	15	40	mg/dL
Creatinine - male	62	115	µmol/L
Creatinine - female	53	97	µmol/L
Creatinine - male	0.7	1.3	mg/dL
Creatinine - female	0.6	1.2	mg/dL
Glucose (fasting)	3.9	5.8	mmol/L
Glucose (fasting)	70	120	mg/dL

Activity 5. Study the abbreviations and discuss in class.

Abbreviation

Now on the forms with the result of analyzes mainly use English abbreviation. Let's take a look at the main indicators and understand what they mean.

WBC- white blood cells - білі кров'яні тільця-лейкоцити;

RBC- red blood cells - червоні кров'яні тільця-еритроцити;

HGB- hemoglobin - гемоглобін;

HTC- hematocrit - гематокрит;

MCV- mean corpuscular volume - середній обсяг еритроцитів;

MCH- mean concentration hemoglobin - середній вміст гемоглобіну в еритроциті;

MCHC- mean corpuscular hemoglobin concentration - середня концентрація гемоглобіну в еритроциті;

RDW- red cell distribution - індекс розподілу еритроцитів;

PLT – platelets - тромбоцити;

MPV- mean platelets volume - середній обсяг тромбоцитів

PTC- ehrombocrit - Тромбокрит.

Thus, the leukocyte formula.

NEU (%i абс.)- Neutrophil-Нейтрофіли;

MONO (%i абс.)- Monocytes-Моноцити;

EO (%i абс.)- Eosinophils-Еозинофіли;

Vaso (%i абс.)- Vasophil-Базофіли.

Activity 6. Match ranges (A) with their definitions (B).

A	B
Red Blood Cell Count	This test is performed to measure the function of kidney.
Hemoglobin	Regulates serum calcium

Comprehensive Metabolic Panel	Level of hemoglobin molecules.
Parathyroid hormone	This analysis provides an overall picture of the metabolism and chemical balance of the body.
Complete Blood Count	Analysis of 15 different blood test readings to provide information about overall health.
Urea and Electrolytes	Level of "bad cholesterol" in the blood
Low Density Lipoprotein	The level of red blood cells.

Activity 7. Write a summary about biochemical analysis (6-10 sentences)

UNIT 5

Microbiological examination of blood



Activity 1. Learn new words and phrases. Practice pronunciation. Repeat after your teacher.

Vocabulary

examination	експертиза
penetration	проникнення
sepsis	сепсис
bacterial shock	бактеріальний шок
causative agents	збудники
fungi	гриби
Candida albicans	Кандида-Альбіканс
elimination	усунення
media	середовище
sowing	сів
inoculation	щеплення

Activity 2. Read the text and translate it.

Microbiological examination of blood is performed for diseases associated with the penetration of microorganisms into the bloodstream. Normally, human blood is sterile. Microbes enter the bloodstream as a result of complications in a

number of diseases, during blood transfusion and various manipulations, when sepsis, bacteremia, and bacterial shock develop. A blood test for the content of microorganisms should be carried out in patients with prolonged unclear fever, especially in people with reduced immunological reactivity.

Septicemia and bacteremia can be caused by almost all pathogenic and opportunistic pathogenic microorganisms. Among gram-positive bacteria, the most common causative agents of sepsis are Staph. aureus. Streptococcus group D, Str. viridans, Str. pneumoniae. Among gram-negative, E. coli, Klebs prevail. pneumoniae, Ps. aeruginosa, Bacteroides fragilis. Of the fungi, Candida albicans is the most common.

Taking blood for research.

Blood for culture should be taken before the start of antibiotic therapy or after a certain period of time (8-10 hours) after the administration of the drug, which is necessary for its elimination from the body. If blood culture is performed during antibiotic therapy, it is recommended to add substances that neutralize the effect of drugs to the nutrient media. So, with penicillin therapy for this purpose, you can use penicillinase, with the use of cephalosporins - cephalosporinase, tetracyclines - magnesium ions, which are tetracycline antagonists.

Blood from the patient for sowing should be taken at the beginning of the chill when the temperature rises.

Blood for inoculation is taken from a vein, strictly observing the rules of a sepsis. In order to do this, the skin at the venipuncture site is thoroughly treated with alcohol and iodine again. With a sterile syringe, 10-15 ml of blood is collected (2-3 ml in young children), which is either inoculated directly at the patient's bedside into a nutrient medium, or placed in a sterile container containing substances that prevent blood coagulation (0.3% solution sodium citrate, 0.1% sodium oxalate, 1 ml of heparin, etc.). The material is quickly transported to the laboratory, where further research is carried out. You can store blood in the refrigerator for no more than 1-2 hours; with longer storage, lysis of bacteria is possible.

Activity 3. Answer the questions.

1. In what case the microbiological examination of blood is performed?
2. What are the most common causative agents of sepsis?
3. When blood from the patient for sowing should be taken?
4. How blood for microbiological examination must be stored?

Activity 3. Translate into Ukrainian.

complications, various manipulations, prolonged unclear fever, immunological reactivity, administration of the drug, neutralize the effect, nutrient medium.

Activity 4. Continue the sentences.

1. A result of complications in a number of diseases is _____
2. Bacteremia can be caused by _____
3. You can use penicillinase for the purpose _____
4. The skin at the venipuncture site must be treated _____
5. Blood is collected with _____

Activity 5. Make up sentences of your own with given word combinations.

1. blood for culture _____
2. nutrient medium _____
3. elimination _____
4. prolonged unclear fever _____
5. lysis of bacteria _____

Activity 6. Write a summary about the procedure of taking blood for research. (6-10 sentences)

UNIT 6

Conducting the research.



Activity 1. Learn new words and phrases. Practice pronunciation. Repeat after your teacher.

Vocabulary

semi-liquid	напівжидкість
sugar broth	цукровий бульйон
typhoid fever	черевний тиф
blood seeding	посів крові
crops	культури
anaerobic conditions	анаеробні умови
tilting	нахил
dense	щільний
contamination	забруднення
massiveness	масивність
nutrient media	поживні середовища
yeast	дріжджі
germs	мікроби

Activity 2. Read the text and translate it.

Sowing is performed: 5-10 ml of blood per 50-100 ml of liquid nutrient medium -1% sugar broth "two-phase" medium, as well as liquid and semi-liquid media for the cultivation of anaerobes. If you suspect typhoid fever or other

infections, use special nutrient media. To quantitatively determine the massiveness of blood seeding, a few drops of blood are inoculated from a syringe onto the surface of a Petri dish with 5% blood agar. Crops are incubated in a thermostat for 10 days. Crops are viewed daily. In the presence of growth on nutrient media, inoculations are made on plates with 5% blood agar, which are incubated under aerobic and anaerobic conditions. A pure culture is isolated from the colonies grown on blood agar plates, identified and antibiotic susceptibility determined. Inoculations of blood on a "biphasic" medium are viewed by tilting the bottle and thus moistening the surface of the slant agar with blood broth. This eliminates the need for sowing on dense media and reduces the possibility of contamination of crops. To avoid drying out of nutrient media, the bottle caps are waxed. In this form, the vials can be kept for a month, which is necessary when slowly growing microorganisms are isolated. A single blood culture does not always result in a blood culture. More informative is a threefold blood culture at intervals between crops per day. In treated patients, blood for inoculation should be taken 5-6 times.

Evaluation of the results of a microbiological blood test depends on the type of isolated microorganisms and the massiveness of growth. Isolation of pathogenic species clearly indicates their etiological role in the disease. In the case when UPMs are isolated from the blood, their quantitative content should be taken into account (the isolation of single cells often indicates contamination), the presence of a monoculture or association (associations are more often isolated when the inoculum is contaminated, however, in patients with reduced immunological reactivity, mixed infection is possible), repetition of the selection of the same cultures from a patient and the identity of blood cultures with cultures isolated from other material from the same patient.

At the final conclusion, the microbiologist must compare the data of the microbiological study with the clinical picture of the disease and the results of other analyzes.

If, 10 days after sowing blood, the growth of microbes on nutrient media is not detected, the analysis can be considered negative.

Activity 3. Translate into English.

Посів крові, поживні середовища, дріжджі, етіологічна роль, триразова кров, планшети з агаром крові, імунологічна реактивність, клінічна картина захворювання, зростання мікробів.

Activity 4. Fill in the gaps with proper word from the box.

yeast, treatment, sample, infection, test, body, germs
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A blood culture test helps your doctor figure out if you have a kind of 1).....that is in your bloodstream and can affect your entire 2)..... Doctors call this a systemic infection. The test checks a 3)..... of your blood for bacteria or 4)..... that might be causing the infection. If your doctor orders this 5)....., it's because they think you might have a systemic infection and they want to check for certain kinds of 6)..... in your blood. It can help them come up with the best 7)..... for you.

Activity 5. Make up sentences with given word combinations.

1. pure culture _____
2. presence of growth _____
3. dense media _____
4. pathogenic species _____
5. compare the data _____

Activity 6. Write a summary about the conducting research. (6-10 sentences)

Texts for additional reading

The largest protozoan is a human parasite, and the only ciliate in this company. Its dimensions vary from 30 to 150 microns in length and from 25 to 120 microns in width. For comparison: the length of the malarial plasmodium in the largest stage is about 15 microns, and several times less than the balantidium of the intestinal cells, among which the ciliates live. An elephant in a china shop. It is distributed wherever there are pigs - its main carriers. Usually lives in the submucous layer of the colon, although in humans it also occurs in the pulmonary epithelium. It feeds on *B. coli* bacteria, food particles, fragments of the host's epithelium. In animals, the infection is asymptomatic. People can develop severe diarrhea with bloody, slimy discharge (balantidiasis), sometimes ulcers form in the walls of the colon. It is rare to die of balantidiasis, but it causes chronic exhaustion. People become infected through dirty water or foods containing cysts. The infection rate in humans does not exceed 1%, while pigs can be infected all over the world.

The first parasitic amoeba found in humans. Gross discovered an amoeba in plaque, hence the name from the Latin *gingivae* – gums. It lives in the mouth of almost all people with aching teeth or sore gums, inhabits gum pockets and plaque. It feeds on epithelial cells, leukocytes, microbes, and in case of erythrocytes. It is rare in people with a healthy oral cavity. This small protozoan, 10–35 μm in size, does not go out into the environment and does not form cysts; it is transmitted to another host by kissing, through dirty dishes or contaminated food. *E. gingivalis* is considered an exclusively human parasite, but it is sometimes found in captive cats, dogs, horses, and monkeys. In the early twentieth century, *E. gingivalis* was described as the causative agent of the periodontal disease, as it is always present in inflamed dental cells. However, its pathogenicity has not been proven.

Giardia, the most common intestinal parasite, is ubiquitous. 3-7% of people are infected in developed countries and 20-30% in developing countries. That is about 300 million people. Parasites live in the duodenum and bile ducts of the host, where they either float, working with flagella, or attach to the epithelium with the help of a sticky disc located on the underside of the cell. Up to a million lamblia sticks to 1 cm² of the epithelium. They damage the villi, which interferes with the

absorption of nutrients, causing mucosal inflammation and diarrhea. If the disease affects the bile ducts, it is accompanied by jaundice. Giardiasis is a disease of dirty hands, water and food. The life cycle of a protozoan is simple: in the intestine there is an active form, and at the exit with fecal masses there are stable cysts. To become infected, it is enough to swallow a dozen cysts, which in the intestines will again turn into an active form. The main secret of the ubiquity of lamblia is in the variability of surface proteins. The human body fights against lamblia antibodies and, in principle, is able to develop immunity. But people living in the same area and drinking the same water become infected again and again by the descendants of their own parasites. Why? Because during the transition from the active phase to the cyst and vice versa, lamblia changes the proteins to which antibodies are produced - variant-specific surface proteins. There are about 190 variants of these proteins in the genome, but only one is always present on the surface of an individual parasite; the translation of the rest is interrupted by the mechanism of RNA interference. And the change happens about once every ten generations.

The simplest, which is sexually transmitted. It lives in the vagina, and in men - in the urethra, epididymis and prostate gland, it is transmitted sexually or through wet washcloths. Babies can become infected by passing through the birth canal. In *T. vaginalis* 4 flagella at the front end and relatively short undulating membrane, it produces false foot, if necessary. The maximum size of *Trichomonas* is 32 by 12 microns. *Trichomonas* is more common than the causative agents of chlamydia, gonorrhea and syphilis combined. It affects about 10% of women, and possibly more, and 1% of men. The latter figure is unreliable because it is more difficult to detect the parasite in men. *T. vaginalis* feeds on microorganisms, including lactic acid bacteria of the vaginal microflora, which maintain an acidic environment, and thus creates an optimal pH for itself above 4.9. *Trichomonas* destroys mucosal cells, causing inflammation. About 15% of infected women complain of symptoms.

T. gondii is the most powerful parasite in that it controls the behavior of intermediate hosts. Distributed everywhere, unevenly distributed. In France, for example, 84% of the population is infected, in the United Kingdom - 22%. The life cycle of *Toxoplasma* consists of two stages: asexual occurs in the body of any warm-blooded

animals, sexual reproduction is possible only in the epithelial cells of the cat's intestine. For *T. gondii* to complete development, the cat must eat the infected rodent. Increasing the likelihood of this event, *T. gondii* blocks rodents' natural fear of cat urine smell and makes it attractive by targeting a group of neurons in the amygdala. How she does it is unknown. One of the proposed mechanisms of action is a local immune response to infection. It alters cytokine levels, which in turn raises levels of neuromodulators such as dopamine. Toxoplasma also affects human behavior, which is manifested even at the population level. So, in countries with a high level of toxoplasmosis, neuroticism and a desire to avoid uncertain, new situations are more common. It is possible that *T. gondii* infection could lead to cultural changes.

Useful information

Abbreviation	Stands for	Description
HDL	High Density Lipoprotein	Level of "good cholesterol" in the blood (ratio of HDL:LDL is usually more significant than actual values)
LDL	Low Density Lipoprotein	Level of "bad cholesterol" in the blood (ratio of HDL:LDL is usually more significant than actual values)
PV	Plasma Viscosity	Plasma Viscometry (PV) is the measurement of the viscosity of blood plasma. The end result is a number given in milliPascal seconds (m.Pas.s) – known as the PV, or plasma viscosity.
CRP	C-Reactive Protein	Level of inflammation with the body. If the immune system is fighting an infection or illness, CRP will be

		higher.
CBC (UK: FBC)	Complete Blood Count (UK: Full Blood Count)	Analysis of 15 different blood test readings to provide information about overall health.
TSH	Thyroid-stimulating hormone	Thyroid regulates the function of metabolism. Low levels can lead to weight loss, while high levels lead to weight gain.
PTH	Parathyroid hormone	Regulates serum calcium
ESR	Erythrocyte Sedimentation Rate	Indicates the time it takes for red blood cells to move down a tube. This shows signs of inflammation within a body.
INR	International Normalized Ratio	This is a blood clotting test.
LFT	Liver Function Test	This test reveals the levels of waste products, enzymes and proteins that are processed by the liver.
U+E	Urea and Electrolytes	This test is performed to measure the function of kidney.
CMP	Comprehensive Metabolic Panel	This analysis provides an overall picture of the metabolism and chemical balance of the body.
WBC	White Blood Cell Count	The level of white blood cells.
RBC	Red Blood Cell Count	The level of red blood cells.
HBC	Hemoglobin	Level of hemoglobin molecules.
HCT	Hematocrit	Similar to RBC but in percentage.
PLT	Platelets	Platelets levels in the blood.

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Видання містить матеріал щодо роботи з на практичних заняттях та під час самостійного опанування матеріалу здобувачами вищої освіти першого року навчання. Тематичне наповнення відповідає навчальному плану та робочій програмі: тексти, лексико-граматичні вправи, додаткові матеріали. Видання може бути корисними для здобувачів вищої освіти денної, заочної, дистанційної форм навчання, викладачів англійської мови.

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