ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ БЮДЖЕТНОЕ ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ
«КУБАНСКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ»
МИНИСТЕРСТВА ЗДРАВООХРАНЕНИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ
(ФГБОУ ВО КубГМУ Минздрава России)

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КАНДИДАТСКИЙ ЭКЗАМЕН ПО АНГЛИЙСКОМУ ЯЗЫКУ

(учебное пособие на английском языке)

Краснодар 2018

УДК 811.111+615ю1 (076.5)
ББК 81.2. Англ.-9
У91

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Пособие «Кандидатский экзамен по английскому языку» составлено в соответствии с Программой по дисциплине «Иностранный язык» для сдачи кандидатского минимума для аспирантов и соискателей медицинских вузов**.**

Рекомендовано к изданию ЦМС ФГБОУ ВО КубГМУ Минздрава России
Протокол № _9__ от «_4_» ___мая__ 2018 г.

Предисловие

Пособие предназначено для аспирантов и соискателей, работающих в различных областях медицины.

Практическое владение иностранным языком в рамках данного курса предполагает наличие таких умений в различных видах речевой коммуникации, которые дают возможность:

• свободно читать оригинальную литературу на иностранном языке в соответствующей отрасли знаний;

• оформлять извлеченную из иностранных источников информацию в виде перевода или резюме;

• делать сообщения, доклады на иностранном языке, связанные с научной работой аспиранта;

• вести беседу по специальности.

Введение

Настоящее пособие составлено согласно требованиям Программы по иностранным языкам для сдачи кандидатского экзамена. Цель данного пособия – совершенствование и дальнейшее развитие полученных в высшей школе знаний, навыков и умений по иностранному языку в различных видах речевой коммуникации и подготовка к сдаче экзамена для «кандидатского минимума».

Пособие поможет развить навыки чтения и понимания оригинальной литературы по различным направлениям медицины, а также ввести учащихся в общую терминологию конкретной области медицины, что позволит им овладеть терминологической лексикой по своей специальности. Курс состоит из 21 урока. Каждый урок включает текст для обязательного чтения, фонетические, лексические и грамматические упражнения. Тексты уроков взяты из современных английских и американских источников. Помимо терминологической лексики в пособии представлена общенаучная лексика.

В кратком грамматическом справочнике приводятся основные грамматические правила и синтаксические структуры.

В приложении даётся список показателей научного статуса ученого, перевод которых представляет определённые трудности, а также правила чтения математических и химических формул.

Содержание

Part I

Lesson 1. Hospital

I. Learn to pronounce, write and read English words and medical terms.
1. Read the following terms and memorize their Russian equivalents.
Department, Pediatrics, Radiology, Surgery, Dermatology, Emergency, Orthopedics, Cardiology, Obstetrics, Pathology, Pharmacy, cardiologist, surgeon, anesthesiologist, pediatrician, obstetrician, radiologist, lab technician, general practitioner, nurse, pharmacist.

II. Text study
2. Read the text, translate it

Hospital Departments

Heartland Hospital's dedicated staff is here to serve you. Our first-class departments include:
Pediatrics: provides healthcare from birth to adulthood
Obstetrics: cares for women through all stages of pregnancy
Surgery: performs everything from routine procedures to organ transplants
Radiology: creates X-rays and CT scans for all departments
Dermatology: cares for everything from warts to skin cancer
Emergency: treats patients in life – threatening condition
Cardiology: investigates and treats all heart problems
Pathology: tests samples for all departments
Orthopedics: provides bone and joint care
Additionally our **Pharmacy** can fill prescriptions twenty-four hours a day, seven days a week.

Hospital staff
Dr. Paul Sartin, **cardiologist, surgeon**/ Office: 100 See for: Heart Diseases, Heart Surgery
Dr. Lydia Greenwich, anesthesiologist/ Office 101 See for: Surgery Pain Relief and Preparation
Dr. Richard Collins, **chief pediatrician**/ Office 102, See for Children's health
Dr. Ann Harold, **obstetrician**/Office 103 See for Labor, Pregnancy
Dr. Thomas Locke, **chief radiologist**/ Office 104, See for: X – rays, CT scans
Carol Howard, **lab technician**, See for Test Results

Dr. Rowan McNeil, **general practitioner**/ Office 202, See for General Medicine
Carol Simmons, NP, **head nurse** /Office 203, See for Nursing Schedules
Dr. Charles Theil, **pharmacist/** Office 204, See for prescriptions

Medical Supplies

Large items such as wheelchairs and pressure mattresses are at the back of the room. Supplies for patient rooms such as gowns and bedpans are on the left. Syringes are on the top of the shelf on the right. Dispose of used syringes in the sharps containers. Gauze, latex gloves and other examination supplies are under the syringes. Dispose of these items in a biohazard waste container. If any items are out of stock, please submit an order form to the front desk.

Common abbreviations

Patient evaluation

Date: April 12
Patient name: Christine Gordon
ID Number: 6612431
Sex: Female
Physician: Harold Downs MD
Attending Nurse: Susan Smith, RN
Time: 23:15
Patient Condition: Stable
Patient Vital Signs:
T: 100.6 degrees Fahrenheit, as taken by oral thermometer
HR: 81 beats per minute
BP: 140/90
Respiration: Patient **c/o SOB**
Notes: **XR** shows no acute lung disease. Blood sugar levels are **WNL. O/e** patient appears to have level of anxiety. The patient is a smoker and has a high stress profession/lifestyle.
Dx. The patient likely has **HTN.** But further testing and lifestyle analysis will be required. **Rx** options will include diet/lifestyle adjustment and medicine.

Measurements

Medication list/ procedures for KARLTON AVE. HOUSE
Pascale, D. -40 mEq KCL by mouth twice a day. 1mL (1cc) insulin injection, via abdomen, after dinner.
Holmes, F. – 2gtt saline solution in each eye, every morning.
Paulson, G. – 2tsp of fish oil by mouth every afternoon.

Roberts, R. – 1 Tbsp of Dextromethorphan (DM) by mouth twice a day. Take for 5 days or until cold subsides. 2 g Omega-3 by mouth every morning.
Francis, H. - 20 mg fluoxetine HCL by mouth at breakfast.
Harrison, K.- 500 mcg Cabergoline by mouth every night before bed. 1 Tbsp of fish oil by mouth every afternoon.
Trancy, A. – 25 oz medicinal toothpaste every morning and night.

III. Word study

3. Match the words with the definitions

a) 1 – pediatrics
2 – orthopedics
3 – cardiology
4 − dermatology
5 – obstetrics

A the hospital department that specializes in the treatment of the heart and heart diseases
B the hospital department that treats women and unborn children during pregnancy
C the hospital department that specializes in the treatment of the skin and skin diseases
D the hospital department that specializes in the treatment of bones and muscles
E the hospital department that specializes in the treatment of children

b) 1− lab technician
2−anesthesiologist
3−general practitioner
4 − nurse
5 – pharmacist

A a doctor who provides many kinds of care to adult and children
B doctors who renders patients unconscious or prevent them from feeling pain
C a medical professional who works with sample in a laboratory
D a medical professional who helps a doctor and cares patients
E a person who fills prescriptions and gives medicine

c) 1−syringe
2− sharp container
3– biohazard waste container
4 − gown
5 – gauze

A a cotton fabric used to cover wounds or surgical incisions
B a long robe worn by a hospital patient
C a box for a storing of used needles and other sharp medical instruments before disposal
D a device used for injecting liquids into the body
E a box for a storage and disposal of dangerous medical wastes

d) 1 – HR
2− BP
3 – Dx
4 – T
5 – c/o
6 – WNL
7 o/e −

A to describe uncomfortable symptoms

B the amount of internal body heat measured
C the identification of an illness or disease
D the amount of force applied on blood vessels walls by circulating blood
E the number of heartbeats in a given amount of time
F to be at an average level
G discovered while investigating a patient's health

4. Read the hospital directory once more. Then mark the following statements as true (T) or false (F)
1. A patient having heart surgery will visit Dr. Sartin and Dr. Greenwich.
2. Dr. Harold is best qualified to examine a sick four-year old.
3. Pregnant women meet their doctor on the second floor

5. Fill in the blanks with the correct words given below
1. Please, take the sample to _____ for testing.
2. An ambulance brought the patient to the _____ room.
3. Could you get the X- ray from _____?
4. The _____ on the first floor should have the medicine you need.
5. Take this patient to _____ for her transplant.
Radiology, pathology, surgery, emergency, pharmacy

6. Read the sentences and choose the correct word
1. Wear a new pair of **gowns / latex gloves** to examine the patient
2. A(n) **oxygen tank / wheelchair** helps Mr. Hayes breath.
3. The **bedpans / latex gloves** in this room need to be emptied before you leave.
4. Please get Mr. Wilson **a bedpans / wheelchair** so he can move around.
5. Order a(n) **pressure mattress / oxygen tank** for Ms. Jones to help her back pain.

7. Read the medication list for patients and choose the correct answers
1. What is the purpose of the medication list?
A to describe different medications and their effects
B to show safe dosages of different medications
C to list patients' medications and dosages
D to explain what medications treat different illness
2. Which of the following patients does not get multiple medications?
A R. Roberts; **B** K. Harrison; **C** D**.** Pascal; **D** F. Holmeser
3. Which of the following is equal to one ml?
A. 1 teaspoon; **B.** 1 milligram; **C.** 1 drop; **D.** 1 cubic centimeter

8. Match the words with the definitions

1- mg	**3**- mcg	**5**- tsp
2 –mEq	**4** – Tbsp	**6** – g

A a unit of mass equal to one millionth of a gram

B a unit of mass equal to one thousandth of a gram

C 1/ 1000^{th} the weight of the minor component of a chemical solution dissolved in the major component

D a unit of mass which is equal to $1/1000^{th}$ of a kilogram

E a measure of volume equal to the amount a standard teaspoon can hold

F a measure of volume equal to the amount a standard tablespoon can hold or about three teaspoons

Lesson 2. The Cells

I. Learn to pronounce, write and read English words and medical terms.

1. Write the following words in transcription

Anaphase, chloroplast, deoxyribonucleic acid, endoplasm, liposome, nucleoprotein, organelle, prophase, ribosome, nucleus

2. Read the following terms

a) Erythrocyte, gene, granule, kernel, metaphase, nutrient, telophase, membrane, protein, semipermeable.

b) Golgi apparatus, ribonucleic acid, endoplasmic reticulum, nucleic acid, electron microscope, reduction division.

II. Text study

3. Read the text, translate it consulting dictionary

The cell is the smallest unit of living matter capable of independent life. Its main function is to preserve a suitable environment for itself and for neighboring cells. It is minute, mainly microscopic, and mass of cytoplasm bounded by a semi permeable container, the cell membrane.

There are non- nucleated cells, such as the erythrocytes, but most cells have one or more nuclei. There are dense kernels which direct the activity of the rest of the cells.

Under a high-power microscope, the cell reveals a complex structure with a number of specialized parts called organelles. They are so tiny that we need electron microscope to observe them.

The most important organelles include mitochondria – in which combustion of nutrients provides energy to keep the cells alive, ribosomes – which have the vital function of synthesizing proteins, Golgi apparatus – responsible for the elaboration and secretion of cell products, lysosomes, endoplasmic reticulum, chloroplasts etc.

The nucleus itself is a complex structure separated from the cytoplasm by an enclosing membrane, the nuclear envelope. There are one or more nucleoli and a number of granules. The nucleus as a whole is composed mainly of nucleoprotein. The chemical composition of nucleoprotein is important because it determines what proteins the cell can produce. This is the major factor in determining the biological properties of the cell as a whole.

The granules contain a quantity of nucleic acid, i.e. the DNA and RNA. The body contains thousands of different kinds of proteins each of which is determined by its

own unit of DNA called gene. Each of the genes governs the synthesis of one protein.

The outstanding quality of DNA is that it can make an exact copy of itself by splitting into two halves. Before a cell divides, its DNA is organized into paired structures called chromosomes. A chromosome is a collection of hundreds of genes.

The mitotic division of a cell takes place in four phases:

Prophase– this is the initial part of mitosis, in which chromosomes are condensed from the resting form of a multitude of genes and split into paired chromatids. The spindle and aster are formed and this is followed by the alignment of the double chromosomes across the centre of the spindle;

Metaphase – is marked by the complete separation of each of the 23 pairs of chromosomes;

Anaphase -the mitotic process reaches the point when chromosomes halves move towards the pole of the spindle;

Telophase–is the final stage of cell division. It is marked by the appearance of two daughter cells.

There is no splitting of the chromosomes when the germ cells (the ovum and sperm) are formed. This process is called meiosis or reduction division. Instead, only one member of a pair of chromosomes goes to a germ cell so that there are 23 single chromosomes. When the ovum is fertilized, new pairs are made with one member form either parent.

4. Answer the following questions

1. What is a cell? 2. What does a cell look like? 3. What are the main parts of a cell? 4. What will a high-power microscope reveal? 5. What kind of process takes place in mitochondria? 6. In which part of the cell are proteins synthesized? 7. What is Golgi apparatus responsible for? 8. What is the nucleus mainly composed of? 9. Which are the principle nucleic acids? 10. What is characteristic feature of DNA? 11. What is the difference between a chromosome and a gene? 12. Which are the four phases of mitotic division? 13. What kind of activity is characteristic of the prophase? 14. What goes on during meiosis?

III. Word study

5. Write the plural form of the following nouns

Meiosis –	nucleolus -
Mitosis –	ovum -
Synthesis -	reticulum –

6.Form the adjectives, using one of the suffixes: ***-al, -tic, -ar, -ic***

Environment –	mitosis –
Gene-	reticulum –
Granule –	acid -
Microscope -	synthesis -

7.Form the nouns, using one of the suffixes: ***-ation, -ance, -ment***

Align-	depend-
Appear-	observe-
Envelop-	preserve-
Govern-	separate-

8. Make up English- Russian pairs of words

Living matter, independent life, suitable environment, neighbouring cell, semipermeable container, complex structure, vital function, chemical composition, outstanding quality, paired structure.

Подходящая среда, химический состав, выдающееся свойство, живая материя, полупроницаемая оболочка, сложное строение, соседняя клетка, жизненно важная функция, парная структура, самостоятельная жизнь.

9. Fill in the blanks with the proper prepositions

a) 1. Cytoplasm is bounded ___ the cell membrane. 2. Voluntary muscles are responsible ___ the extension and bending of the extremities. 3. Diaphragm separates thoracic cavity___the abdominal cavity. 4. DNA is organized ____ paired structures. 5. Chromosomes split ___ paired chromatids. 6. Prophase is followed ___ metaphase. 7. Cardiac muscle is marked ___ rhythmic contractions. 7. The cell reveals its structure ____ a high-power microscope. 8. DNA produces its exact copy ___splitting ___two halves.

10. Complete the definitions below

1. The cell is....
2. The most important organelles include ….
3. The nucleus is ….
4. The granules contain ….
5. The prophase is… .
6. Metaphase **is**….
7. Anaphase is….
8. Telophase is….

IV. Learn to translate professional English medical texts

11. Translate the text into Russian

The cell is the functional basic unit of life. It was discovered by Robert Hooke and is the functional unit of all living organisms. It is the smallest unit of life that is classified as a living thing, and is often called the building block of life. Some organisms, such as most bacteria, are unicellular (consist of a single cell). Other organisms, such as humans, are multicellular. Humans have about 100trillion cells; a typical cell size is 10μm and a typical cell mass is 1 nanogram. The largest cells are about 135μm in the anterior horn in the spinal cord while granule cells in the cerebellum, the smallest, can be some 4μm and the longest cell can reach from the toe to the lower brain stem (Pseudounipolar cells).

In 1835, before the final cell theory was developed, Jan Evangelista Purkinje observed small "granules" while looking at the plant tissue through the microscope. The cell theory, first developed in 1839 by Matthias Jakob Schleiden and Theodor Schwann, stated that all organisms are composed of one or more cells that all cells come from preexisting cells, that all cells contain the hereditary information necessary for regulating cell functions and for transmitting information to the next generation of cells.

The word cell comes from the Latin cellula, meaning a small room. The descriptive term for the smallest living biological structure was coined by Robert Hooke in a book he published in 1665 when he compared the cork cells he saw through his microscope to the small rooms monks lived in.

Lesson 3. In the laboratory

I. Learn to pronounce, write and read English words and medical terms.

1. Write the following words in transcription

Various, variety, glassware, crucible, porcelain, suitable, desiccators, centrifuge, require, weighing, quantitative, graduated, screw, distinguish, focusing, adjustment, procedure, paraffin, dehydrate, subsequently, alkaline, haematoxylin, iron, convert, gelatin, eventually, balsam.

2. Read the following terms

Beaker, funnel, pipette, acid-proof, alkali-proof, balance, pestle, reflux, microscope, objective, sub stage, diaphragm, series, fixative, dye, bind, starch, counter stain, specimen, coverslip, burette.

3. Read the following compound terms

Watch-glass, ventilation hood, water-bath, sand-bath, filter pump, Bunsen burner, eye-piece, body-tube, nose-piece, Zenker's solution, Bouin's fluid, mercurial fixative, Prussian blue, Canada balsam.

II. Text study

4. Read the text, translate it consulting dictionary

A great deal of research and general medical and related work is done in the laboratory. To suit the various types of work, a laboratory is equipped with a variety of apparatuses and other means. There is usually a working table or bench there with a sink and running water, gas and electricity mains. Electricity serves for lighting and as a driving power, gas for producing flames of different intensity.

The necessary assortment of laboratory glassware includes test-tubes, beakers, flasks of different shapes and size, bottles, jars, cylinders, funnels, pipettes, burettes, watch-glasses. Dishes, basins, crucibles, grinding mortars with pestles, and stirrers are usually made of porcelain. Plastic materials find good use in laboratories, too, as many of them are chemically resistant, acid- or alkali-proof and unbreakable and therefore suitable for storing stock solutions.

The more sophisticated equipment includes desiccators, ovens, furnaces or kilns for generating high temperatures (often with a ventilation hood to enable the escape of harmful vapours or undesirable odours),centrifuges, thermostats, balances, reflux condensers, water-baths, oil- or sand-baths, distilling flasks, a filter pump, optical or even electron microscopes etc.

By far the most important stock equipment of any histological laboratory is the light microscope. It consists of the eye-piece, body-tube and a set of usually three objectives screwed into a revolting nose-piece. The lens of an objective has a specific resolving power, i.e. a capacity to distinguish between two adjacent points. Accurate focusing is achieved by special screws for coarse and fine adjustment. The material – section of a tissue- to be observed is put on a slide which is held in position on a stage by clips, unless the microscope has a built-in mechanical stage. The sub stage consists of a condenser, iris diaphragm and mirror.

The standard light microscope has a magnifying power of 1,000 diameters. Low-power objectives give a fairy large field and make scanning easier; high- power objectives bring more detail into view.

Yet little detail can be seen on the face of a block of untreated tissue. We can only examine a thin slice of it with a light shining through it. A laboratory worker has to follow certain fairly standard procedures. Fresh tissue, selected for microscopy, has to be fixed, imbedded in paraffin, sliced on a microtome, stained, dehydrated, cleared in xylol and mounted for observation.

There are different types of fixative: formalin, Zenker's solution, Bouin's fluid, mercurial fixatives etc., according to which stains will subsequently be used.

For routine work a blue alkaline dye, haematoxylin, is used with a pink acidic dye, eosin. The cell nuclei bind haematoxylin and are stained blue, while most of the other structures are stained pink. Special stains are used to detect certain chemical components: starch gives a blue compound with iodine; iron can be converted to Prussian blue etc. Poorly treated sections may have to be counterstained. Dehydration and clearing is achieved by taking the specimens up or down through ascending or descending series of alcohol.

For mounting, the section is floated on the slide on a large drop of 0. 1 per cent gelatin in water. The water then is drained away, the section flattened on to the slide by a stroke pressure through clean absorbent paper. The slides are eventually stood in a container, usually under a covers lip in Canada balsam, and ready for microscopy.

5. Answer the following questions

1. Why is laboratory important for medical work? 2. What is a typical laboratory equipped with? 3. What are the advantages of plastic materials? 4. What is a stock solution? 5. What is a Bunsen burner? 6. What are the main parts of the light microscope? 7. In what way is a section of a tissue observed under the microscope? 8. What has to be done with fresh tissue selected for microscopy? 9. What is a stain in terms of histology? 10. How is dehydration achieved in histology? 11. What can

be done with poorly treated sections? 12. How much details can be seen on a block of untreated tissue?

III. Word study

6. Give relevant nouns to the following verbs and verbal forms

Magnifying	condense	serve
Dehydrate	select	require
Detect	examine	achieve
Distilling	draining	measuring

7. Make up English-Russian pairs of words equivalent in meaning

1) Adjustment; 2) routine; 3) achieve; 4) intensify; 5) stain; 6) power; 7) variety; 8) flexible; 9) sophisticated; 10) suit; 11) resistant; 12) bind; 13) glassware.

1) Соответствовать, подходить, удовлетворять требованиям; 2) многообразие, разнообразие, множество; 3) сила, способность, возможность; 4)мощность, интенсивность, сила;5) склянка, посуда; 6) устойчивый, прочный, стойкий; 7) сложный, современный, утонченный;8) гибкий, мягкий, эластичный; 9) достигать, добиваться, успешно выполнять; 10) регулировка, корректировка, поправка, настройка, юстировка; 11) обычный, стандартный, регулярный; 12) вязать, связывать, завязывать; 13) красить, окрашивать.

IV. Learn to speak professional medical English

8. Give short answers

1. Are there many different types of fixative?
2. Will you be preparing the sections for mounting?
3. Will they have to be sliced, stained and dehydrated?
4. Does the equipment include funnels, pipettes and flasks?
5. Will a Bursen burner do to obtain the temperature?
6. Was there anybody to work with the new type of microscope?
7. Did you recognize that piece of glassware?
8. Does the ventilation hood work properly?
9. Was the matter being discussed when arrived?
10. Are there any more questions to be answered?

9. Ask different questions to elicit the following answers

1. Liquids are measured out in measuring cylinders.
2. Three objectives are screwed into a revolting nose-piece.
3. A laboratory worker has to follow certain fairly standard procedures.

4. The water is then drained away.
5. The section is ready for microscopy.

10. Complete the sentences

1. The necessary laboratory equipment includes …
2. The more sophisticated equipment includes…
3. The following things are made of porcelain…
4. Liquids are measured out in…
5. The standard light microscope consists of…
6. The substage consists of …
7. Fresh tissue has to be …
8. There many different types of fixative such as…
9. To detect certain chemical components special stains are used such as…

Lesson 4. Medical Examination

I. Learn to pronounce, write and read English words and medical terms.

1. Write the following words in transcription

Surgery, complaint, headache, malaise, tremor, guide, reliable, frothy, faeces, loose, chloride, puncture, febrile, bronchoscopy, resonant, stethoscope, sphygmanometer, lancinating, bacilli, percussion.

2. Read the following words

Treatment, subjective, temperature, thermometer, backache, breathlessness, giddiness, fluctuation, weakness, tumor, routine, cerebrospinal, differential, pus, mucoid, mucopurulent, parasite, proctoscopy, florid, tenderness, impaired, speculum, superficial, transitory, pneumococci.

II. Text study

3. Read the text, translate it consulting dictionary

Patients in need of medical help usually go to see their family doctor in his consulting room or surgery. As a rule they have to wait in the waiting room until their turn comes.

In order to make the patient's diagnosis, the G.P. must first learn about the common symptoms, the objective manifestations of the patient's chief complaints. He will want to know if the patient is running a temperature and if so, he will take it or ask the patient to take it, using a thermometer.

Apart from attacks of fever, the most common symptoms include: sweating, general body ache, headache, backache, muscle or joint ache, malaise, nausea, diarrhea, constipation and breathlessness. The patient may also complain of sore throat, cough, giddiness, weakness, tremor and pain.

On examination (O/E in clinical notes) the doctor may find rash, swelling, distention or tumor. These belong among objective findings called signs which also include the results of routine laboratory examinations of the blood, sputum, urine, and stools and possibly the cerebrospinal fluid, too.

Thus, for instance, the blood sedimentation rate (B.S.R. or E.S.R – erythrocyte sedimentation rate) and blood count, simple or differential, are important guides for the establishment of a reliable diagnosis. So is the examination of the sputum for bacilli of tuberculosis, pneumococci, staphylococci, pus or blood. It may be found frothy, mucoid or mucopurulent.

The urine is analyzed for the presence or exact proportion of albumin, sugar, acetone, blood, and bilirubin as well as for color, specific gravity and total quantity

per 24 hours. The stools (faeces), which may be anything from loose to hard and painful to pass, have to be examined for consistency and colour and again for the presence of blood, parasites and fat (split, unsplit, and total fat). In examining the cerebrospinal fluid, (taken by means of a lumbar puncture), the pressure and the proportion of chlorides, glucose and protein have to be established.

In order to obtain a clear clinical picture, the doctor may want to have the patient X-rayed, or to have him undergo an E.C.G (electrocardiographic) or E.E.G (electroencephalographic) investigation. He may want to have his gastric juices analyzed, bronchoscopy, proctoscopy, cystoscopy etc. performed. But these rather sophisticated investigations are better made on an outpatient or, if need be, on an inpatient basis in nearest hospital.

In his surgery, the G.P. is more likely to use, first of all, the four classical methods of:

Inspection – to ascertain visible signs of the patient's condition; thus, for instance, the appearance of the patient's tongue (furred, florid or pail, moist or dry or glazed as in fever) is a valuable sign.

Palpation - to feel tumour, swelling, distention, the presence of tenderness etc.

Percussion – by tapping the chest or other parts of the body and listening to the quality of note, whether resonant or dull, impaired, and so on.

Auscultation – to hear chest sounds, irregularity of heart beat, peristaltic sounds in the abdominal cavity etc.

In the course of the examination in his surgery, the doctor makes use of his stethoscope, speculum, magnifying glass, sphygmanometer, and other aids, to make the diagnosis as correct as possible. To do this, he has to rely on what the patient himself can tell him about his condition; e.g. how often he has his bowels open, if he has any difficulty in passing his water etc. If the patient has pains, the doctor is interested to learn whether it is sharp, dull, constricting, gnawing, lancinating, boring, shooting, throbbing, deep or superficial, transitory or chronic, whether the patient complaints of cramp or spasm. He has to find out if the fever is just subfebrile, slightly, moderately or highly subfebrile, whether it is continued, remittent, intermittent, fluctuating, or relapsing etc.

In examining the patient, the doctor proceeds, as a rule, from the top of the head down the neck, to the chest and abdomen, and finally to the extremities.

This together with the patient's past history and family history helps to establish a reliable diagnosis and to determine what kind of treatment is called for. Then, the G.P. is in a position to write out a prescription, to recommend bed rest or hospitalization, to invite the patient to another interview.

4. Answer the following questions

1. Where do people usually go if they need medical help? 2. What must the G.P. do first to establish a reliable diagnosis? 3. What do patients most commonly complain? 4. What do the abbreviations B.S.R. and E.S.R stand for? 5. What is usually the subject of routine laboratory investigation? 6. What is the urine (faeces) usually examined for? 7. What is a blood count and what are its two main types? 8. What is the point of examining the cerebrospinal fluid? 9. Which are the more sophisticated investigations? 10. What are the four classical methods of examining the patient? 11. What is the aim of palpation (percussion, auscultation)? 12. How are different types of pain described? 13. What are the two meanings of the word "fever"? 14. How does the physician usually proceed the examining his patient? 15. What kind of procedures does the G.P. choose after the examination?

III. Word study

5. Write the plural form of the following nouns

Diagnosis –
Bacillus –
Staphylococcus –

6. Recognize international words

Examination, treatment, picture, manifestation, glass, blood, consistency, position, course, inspection, prescription, attack, presence, count, condition, complaint, difficulty.

7. Make up English-Russian pairs of words equivalent in meaning

Subjective, chief, general, objective, routine, proportion, pass, transitory, determine, recommend, interview, attack.

1) Определять (детерминизм, детерминанта); 2) основной (генерал, главный); 3) индивидуальный (субъективный, личный); 4) реальный (действительный, настоящий, объективный); 5) приступ (атака, наступление); 6) главный (руководитель, шеф); 7) обычный (повседневный, рутинный); 8) приходящий (временный, транзит); 9) часть (пропорция, доля); 10) советовать (предлагать, рекомендовать); 11) проходить (переходить, пасс); 12) собеседование (опрос, интервью)

8. Form the nouns, using appropriate suffixes:

Treat –	examine -	investigate -	hospitalize -
Consult –	establish -	determine -	
Manifest -	complain -	recommend -	

9. Make up English- Russian pairs of words

In need of, as a rule, in order to, apart from, thus, as well as.

Для того чтобы; нуждаться; как правило; так же, как и; помимо; если это так; таким образом.

10. Make up English- Russian pairs of terms

Malaise, nausea, breathlessness, giddiness, weakness, sputum, faeces, lumbar, tongue, swelling, tenderness, backache, tremor, distension, headache

Одышка; недомогание; боль в спине; тошнота; язык; слабость; поясница; головокружение; отёк; болезненность; головная боль; мокрота; дрожь; растяжение; кал

11. Fill in the blanks with the proper prepositions

1. Faeces were analyzed_____ parasites. 2. The doctor listened____ the patient's heart before making final diagnosis. 3. The laboratory is____ need of new equipment. 4. Symptoms suggesting serious respiratory disorder were found____ physical examination of a patient. 5. To make a diagnosis the doctor must learn ____ the patient's main complaints. 6. The patient was examined____ an inpatient basis. 7. The patient complained____ bad headache. 8. The doctor couldn't rely_____ the subjective complaints of the patient to make diagnosis.

IV. Learn to speak professional medical English

12. Complete the sentences

1. To examine a patient the doctor makes use of…
2. Pain may be…
3. The most common symptoms of a disease include…
4. The urine is analyzed for…
5. The stools (faeces) have to be examined for…
6. The sputum is examined for …
7. Fever may be …
8. Inspection is used to …
9. Palpation is used to …
10. Percussion is performed by…
11. Auscultation is used to …

Lesson 5. Infection

I. Learn to pronounce, write and read English words and medical terms.

1. Write the following words in transcription

Pyrexial, exanthem, diarrheal, hemorrhage, fatal, pustular, vaccine, cholera, catarrhal, saliva, bronchial, bilirubin, poliomyelitis, neuron, enteric, febrile, collapse, haemolytic, infantile.

2. Read the following medical terms

Measles, chickenpox, mumps, whooping cough, typhoid, harbor, lymphoid, typhus, vaccinia, pupular, vasicular, virulent, vibrio, jaundice, excrement, urine, vomiting, paralysis, polio, flaccidity, influenza

II. Text study

3. Read the text, translate it consulting dictionary

Infection is defined as the invasion, establishment and growth of a specific pathogenic microorganism in the tissue of the host. Infectious (contagious or communicable) diseases are those caused by such microorganisms and capable of being transmitted to another individual by direct or indirect contact. As they are invariably marked by a pyrexial or febrile condition, i.e. elevated temperature, they are often referred to as fevers, and fever departments in hospitals are those where cases of infectious diseases are kept in isolation.

In terms of hygiene and epidemiology most of the infectious fevers are subject to notification. Many of them attack humans in childhood and consequently come under the heading of children diseases (particularly so: measles, German measles, chickenpox, mumps, and whooping cough). An exanthema (skin eruption or rash) appears as a clinical manifestation of most of the infectious diseases. There are incubation and prodromal periods of varying duration.

Typhoid (or enteric) **fever, a** serious infectious febrile condition, is spread mostly by food, milk or water contaminated by *Salmonella typhosa* present in sewage effluents, or indirectly by flies or insufficient personal hygiene. The germ may also be spread by symptomless carriers who harbor it in their digestive tract, excreting it in their stools and thus contaminating sewage waters . The average incubation period is 10 to 14 days. A rose-coloured exanthema usually appears on the upper abdomen and back at the end of the first week. The onset of the disease, which develops as the germ invades lymphoid tissue, including that of the small intestine, is marked by progressive febrile illness. Stools are profusely diarrhoeal and may culminate in intestinal haemorrhage and perforation as the sloughs

separate during the third week, a stage of defervescence. Ultimate recovery usually begins at the end of the third week.

Typhus (or spotted**) fever,** an acute febrile disease, is normally associated with conditions of war, famine, concentration camps, or natural disasters such as floods as it is usually spread by lice, ticks or fleas. The invading microorganism is *Rickettsia*. Characteristic symptoms of typhus include high fever, skin eruption, congested eyes, and severe headache. Typhus fever is rather sporadic in the developed countries nowadays though it continues to take its toll in the developing world, particularly at times of natural disaster.

Smallpox or **variola** was a fiercely contagious disease caused by the same virus as that of vaccinia or cowpox which is transmissible to man but which confers immunity against true smallpox. The initial symptoms include extreme illness with severe headache and backache, vomiting and high fever. The patient then comes out in a widespread rash (except, usually, the axillae). The rash is first papular, then vesicular and eventually pustular leaving disfiguring scars or pock-marks on the skin if and when the patient survives. The mortality rate among untreated cases is very high. Strict precautions are called for, including immediate isolation of the patient in a special fever hospital, destruction or disinfection of his fomites, the tracing of all contacts and keeping them under surveillance or in quarantine. Vaccination by a smallpox vaccine is the main prophylactic measure.

Cholera is an acute epidemic condition with an extremely high mortality rate. It is caused not only by the classical bacillus of the *Vibrio cholera* strain but also by the newer and far more virulent strain of the *El Tor* group of vibrios. It is spread mainly by contaminated water under conditions of overcrowding and general lack of sanitation. A recovered *El Tor* victim may remain a menace by continuing to excrete bacilli for as long as six months, unlike a mere three weeks after classical cholera. The principle symptoms area: most severe diarrhea, (evacuation of quantities of so called rice-water stools) with an often fatal loss of up to 15 liters of fluid a day in an adult, little or no fever or even subnormal temperature, agonizing cramp and severe collapse. According to the latest theories, the diarrhea results from a disturbance of what is known as the “sodium pump”. Hence the aim of successful treatment is to maintain the patient’s balance of fluids. Vaccination consists of injection of killed bacilli, but complete prevention of cholera can only be achieved by cleaning up or isolating contaminated water supplies.

Infective hepatitis or catarrhal jaundice is inflammation of the liver caused by virus infection. *Virus A* or *IH* has an incubation period of two to six weeks and is spread by the diseased patient’s saliva, mucus, excrements or urine. *Virus B*or*SH* is spread only by direct contact or inoculation with human blood products and is the cause of serum hepatitis with a much longer incubation period ranging from six

weeks to six months. Early symptoms are raised temperature, weakness, sleepiness, irritability, loss of appetite, sickness or even vomiting and in some cases catarrh of bronchial tubes. These are followed by pain in the area of the liver and jaundice due to a sudden increase in the level of bilirubin in the plasma.

Hepatocellular jaundice is a disease of the cells which excrete bilirubin, while **haemolytic jaundice** is caused by increased break-down of erythrocytes.

Poliomyelitis or **infantile paralysis** is an epidemic infection by poliovirus which invades the motor neurons of the anterior horns in the brain stem and spinal cord. An attack of polio may have a crippling effect in that it may lead to paralysis of the lower extremities with loss of muscular power and flaccidity. Better results have been achieved since the introduction of the Sabin live-virus vaccine despite initial fears that the live, though weakened, virus might mutate and regain its virulence to cause paralysis.

Live-virus vaccine is also used to combat **influenza (flu)**, an acute viral infection of the nasopharynx and respiratory tract, which, however, still continues to occur in epidemic form.

4. Answer the following questions

1. How is infection defined? 2. Why are infectious diseases often referred to as fevers? 3. Which of the fevers are commonly associated with childhood? 4. What is a typical clinical manifestation of many contagious diseases? 5. How is typhoid fever spread? 6. What is the clinical picture of enteric fever as the disease progressed? 7. What kind of pathogenic microorganism is spotted fever caused by? 8. What is a clinical picture of smallpox? 9. Why are the symptoms and actual cause of death in cholera? 10. Which is the more effective way of combating cholera: vaccination or high standard of hygiene and sanitation? 11. What is the difference between virus A and virus B types of infective hepatitis? 12. What explains the yellow coloration of the skin in infective hepatitis? 13. What is the difference between hepatocellular jaundice and haemolytic jaundice? 14. What are the particular dangers of polio? 15. What other infectious diseases can you name?

III. Word study

5. From the list below find synonyms to the given words

a) **Adjectives:**

Infectious, serious, insufficient, average, ultimate, sporadic, fatal, common

Final, lethal, inadequate, usual, communicable, severe, mean, occasional

b) **Nouns:**

Condition, onset, disaster, dissemination, surveillance, strain, menace, inoculation, breakthrough, effort, illness.

Spread, danger, disease, state, beginning, kind, observation, attempt, vaccination, advance, catastrophe.

c) **Verb:**

Refer, spread, contaminate, mark, coalesce, cause, confer, achieve, raise, combat, occur, associate.

Appear, characterize, designate, give, transmit, pollute, induce, produce, reach, fight, connect, unite.

d) **Adverbs:**

Invariably, consequently, generally, normally, especially, eventually, initially, fiercely, extremely

Severely, finally, always, very, usually, mainly, primarily, particularly, accordingly

6. Make up English- Russian pairs

Inflammation, manifestation, blotch, invasion, disturbance, coloration, recovery, sleepiness, fever, precaution, irritability, destruction, power, establishment, cause, sickness, evacuation, case, eruption, pattern

Больной, пятно, нарушение, проявление, закрепление, раздражимость, высыпание, предосторожность, вторжение, лихорадка, образец, окрашивание, уничтожение, сонливость, тошнота, воспаление, выздоровление, сила, опорожнение, причина

7. Form the nouns, using suffixes: -ion, -ment, -ance

Refer,occur, transmit, achieve, contaminate, disseminate, prevent, manifest, establish, protect, include, invade, inoculate, move, associate, elevate, concentrate, isolate, excrete, develop, appear, vaccinate, maintain, occur.

8. Form the adjectives, using suffixes: -ic, -al, -ous, -istic, -etic, -atic

Person, haemorrhage, symptom, pathogen, catarrh, condition, nature, proportion, infection, hygiene, character

9. From the list below choose symptoms characteristic for a) cholera; b) typhoid fever; c) smallpox; d) typhus fever; e) infectious hepatitis; f) poliomyelitis

Flaccidity, vomiting, high fever rash, loss of fluid, exanthem, intestinal haemorrhage, eruption, severe dairrhoea, sickness, loss of muscular power, irritability, little/no fever, congested eyes, dairrhoeal stool, severe headache, agonizing cramp, severe collapse, loss of appetite.

IV. Learn to speak professional medical English

10. Complete the definitions

1. Typhus fever is…
2. Typhoid fever is…
3. Smallpox is…
4. Cholera is…
5. Infective hepatitis is…
6. Poliomyelitis is…
7. Influenza is…

V. Learn to translate medical articles

11. Read the text and write down a short abstract in Russian

Infection is a consolidation of a host organism by parasite species. Infecting parasites seek to use the host's resources to reproduce, often resulting in disease. Colloquially, infections are usually considered to be caused by microscopic organisms or microparasites like viruses, prions, bacteria, and viroids, though larger organisms like macroparasites and fungi can also infect.

Hosts normally fight infections themselves via their immune system. Mammalians hosts react to infections with an innate response, often involving inflammation, followed by an adaptive response. Pharmaceuticals can also help fight infections.

The branch of medicine that focuses on infections and pathogens is infectious disease medicine.

Diagnosis of infections can be difficult as specific signs and symptoms are rare. If an infection is suspected, blood, urine, and sputum cultures are usually the first step. Chest X-rays and stool analysis may also aid diagnosis. Spinal fluid can be tested to ensure that there is no brain infection.

In children the presence of cyanosis, rapid breathing, poor peripheral perfusion, or a petechial rash increases the risk of a serious infection by greater than 5 fold. Other important indicators include parental concern, clinical instinct, and temperature greater than 40°C.

The most common symptoms include:

- Extreme fatigue which may be ongoing for more than 2-3 months.
- Continued weight loss.
- Low grade or spiking fever.
- Night sweats and chills.
- Vague body aches and pain.

Lesson 6. The Respiratory Diseases

I. Learn to pronounce, write and read English words and medical terms.

1. Write the following words in transcription

a) Segment, lubricate, residual, opacity, biopsy, military, effect, antibiotic, constrain, bronchus, alveolus, parietal, thorax.

b) Bifurcation, rales, diaphragm, hyperpnoea, allergy, pneumonia, bronchitis, fissure, emphysema, pleura, pleurodynia, respiration, skodaic, cyanotic, coarse, streptomycin.

2. Read the following medical terms

Anoxia, cilia, bronchoscope, otolaryngologist, exudates, phthisis, asphyxia, bronchial, amphoteric, thoracic, suffocation, breathlessness

II. Text study

3. Read the text, translate it consulting dictionary

Commonest Chest Diseases

Bronchitis may be primary or secondary, acute or chronic. Most cases are due to spread of a viral infection from the nasopharynx. A dry, uncomfortable cough develops making the patient feel feverish and ill. Rapid secretion of mucus from the lining of the bronchi is characteristic of the acute form. The chronic form involves regular cough with sputum and damage to the cilia. Complication of the chronic form may easily result in right-sided heart failure, particularly in association with severe emphysema.

Pulmonary emphysema is a gaseous distention of the alveoli with loss of thin dividing walls between spaces where the exchange of oxygen and CO_2should take place. It may be localized (obstructive or compensatory emphysema) or generalized – often just an advanced stage of chronic chest disease, mostly bronchitis.

Pneumonia is the inflammation of the lungs characterized by the production of alveolar exudates in the affected part. The onset is either sudden or after a short minor illness with fever, pain in the chest (caused by the inflamed pleura) and a cough with blood – tinged sputum. Since the introduction of antibiotics, the older, rather anatomical classification into lobar pneumonia and broncho-pneumonia has given way to one based on the type of microbe involved as it determines the choice of drug in what are known as primary specific pneumonias. Hypostatic pneumonia is seen as complication of other diseases when an already debilitated patient lies

still in bed for a long time. In unresolved pneumonia, the alveolar exudates fail to liquefy and consolidation persists.

Bronchial asthma is characterized by paroxysmal attacks of dyspnoea caused by spasm of involuntary muscles around the bronchi. Characteristic signs include expiratory wheeze. The spasm makes it difficult to cough away mucus, the lining of the bronchi becomes congested and swells like that of the nasopharynx with a cold or hay fever. Although the fundamental defect in asthma has yet to be identified, the known causes include emotional stress, allergy, chest infection, breathing in smoking air or even cold, damp air. Severe attacks may result in status asthmaticus.

InPulmonary TB (phthisis) the primary focus of infection, usually in apical region, forms a small abscess which may later develop into a small scar, opaque to X –rays. Unless the process is stopped at this stage, pockets of infection may enlarge to form cavities, to spread through both lungs ("galloping consumption"), to give rise to military TB or TB meningitis. The introduction of antibiotics (streptomycin in particular), para- amino salicylic acid (PAS) and isoniazid and also prevention with regular screening have done much to constrain what used to be one of the most dreaded diseases.

Pleurisy is an inflammatory condition of the pleura; it is invariably due to infection by bacteria or viruses. The bacterial form is a common accompaniment of underlying pneumonia. Pleurisy may be fibrinous (dry), with an effusion (wet) or it may be complicated by empyema. Epidemic pleurisy (pleurodynia, Bornholm disease), characterized by severe diaphragmatic pain, is a contagious disease due to virus infection and usually free from complications.

Spontaneous pneumothorax results from the spontaneous entrance of air into the pleural cavity in pulmonary disease.

Traumatic pneumothorax occurs as a complication of penetrating injuries of the chest. Air in the pleural cavity prevents normal expansion of the lungs and so glossly impairs respiration. The idea of artificial pneumothorax is to put the diseased lung at rest and allow it to heal. Tension pneumothorax, marked by progressively increasing intrathoracic pressure, constitutes an acute medical emergency.

4. Answer the following questions

1. What are the commonest chest diseases? 2. What are the clinical features of bronchitis? 3. What are the dangerous complications of chronic bronchitis? 4. What are the diagnostic signs of bronchial asthma? 5. What are the usual stages of pulmonary tuberculosis? 6. What is the point of using artificial pneumothorax in treatment of TB? 7. What is the usual way of detecting pulmonary tuberculosis? 8.

What is the difference between dry and wet pleurisy? 9. Why does tension pneumothorax constitute an acute medical emergency?

III. Word study

5. Form the adjectives, using suffixes: -ic, -al, -ous, -ial, -ar, -atic

Pharynx, glottis, larynx, trachea, bronchus, bronchiole, alveolus, pleura, diaphragm, muscle, thorax, mucus, lobe

6. Choose the necessary synonyms

Bronchitis is characterized by:

Headache, dry cough, diarrhoea, fever, sickness, loss of appetite.

Bronchial asthma is characterized by:

Dyspnoea, vomiting, eruption, expiratory wheeze, constipation.

Pulmonary TB is characterized by:

Stomach ache, cough, loss of appetite, dizziness, subfebrile temperature, loss of body weight, hypertension.

Pneumonia is characterized by:

Cough with blood – tinged sputum, gaseous distention, fever, abscess, damage to the cilia, congested bronchi.

Pleurisy is characterized by:

Diaphragmatic pain, general body ache, fever, effusion, nausea, loss of appetite, cough.

7. Fill in the blanks with the proper words from the list below

1. The blood parameters of the patient were _____ altered just as during his previous admission to the hospital. 2. The body can use its _____ powers to struggle with the infection. 3. The use of antibiotic streptomycin _____ results in patients' state improvement. 4. Each of the 15 rats received two doses of the test compound _____. 5. It was_____ impossible to distinguish between these two diseases. 6. The treatment was_____ the same as two years ago. 7. There was _____ no reason to worry about the outcome of the operation. 8. The skin of the patient was____ yellow.

Proper, absolutely, definitely, practically, nearly, characteristically, separately, usually

IV. Learn to speak professional medical English

8. Speak about one of the respiratory diseases not mentioned in the text (e.g. whooping cough, tracheitis)

V. Learn to translate medical articles

9. Translate the text into English

Чаще всего *заболевания дыхательных путей* провоцируются болезнетворными микроорганизмами. Мы постоянно вдыхаем воздух, а с ним и огромное число возбудителей инфекционных заболеваний. Наш иммунитет защищает от возбудителей возможных инфекций. Когда иммунитет ослабевает, учащаются случаи инфекционных заболеваний дыхательных путей. Поэтому лучшей защитой от респираторных инфекций является хороший иммунитет.

Острые респираторные заболевания могут спровоцировать деформацию лёгочной ткани и способствуют возникновению фиброзных процессов. Нередко разрастание соединительной ткани приводит к лёгочной недостаточности. А впоследствии и к инвалидности.

Lesson 7. Gastroenterology

I. Learn to pronounce, write and read English words and medical terms.

1. Write the following words in transcription

a)Stomach, esophagus, pancreas, anus, caecum, peritoneum, mesentery, gall bladder, villus, flatus, ileum, ulcer, viscera;

b) Dilate, purpose, ascending, loose, superior, consume, cover, carbohydrate, ascertain, quality, lesion, volvulus, dehydration, secretion, glucose, emaciation

2. Look for the transcription and read correctly the surgical operations on the alimentary tract

Duodenectomy, laparotomy, gastrectomy, cholelithotomy, colostomy, gastroenterostomy, cholecystectomy, appendectomy, colostomy

3. Read the words

a) Salivary, buccal, parotid, sublingual, sub maxillary, canal, peristaltic, pepsin, enzyme, celiac, splenic, vermiform, neutralization, papilla, metabolism, hypertrophy;

b) Superficial, smooth, nodulated, movable, intermittent, exaggerated, scanty, copious

II. Text study

4. Read the text, translate it consulting dictionary

Digestion is defined as a process by which food is broken down and converted into absorbable forms. As such, the process definitely begins in the mouth with the teeth, the tongue, the buccal muscles, the pharynx and the salivary glands (parotid, sublingual, and sub maxillary and buccal) all taking part in it. In practice, however, a gastroenterologist is really mainly concerned with the physiology and pathology of the stomach, intestines, and related structures such as esophagus, liver, gallbladder and pancreas.

Examination

Losses of appetite, nausea, flatulence, pain brought on by food or by hunger, constipation and diarrhoea are all common symptoms of abdominal disorder. In examining the abdomen by palpation, the doctor asks the patient to lie in horizontal position with his head slightly raised and thighs fixed, and to let himself go loose. Palpation may be performed with finger-tips, the whole hand, or both hands; the pressure may be slight or forcible, continuous or intermittent. Information is thus obtained as to the size and position of the viscera, the presence of possible tumours

and swellings. These may be superficial or deep, hard or soft, smooth or nodulated, movable or fixed, solid or liquid. The aim is also to ascertain whether tenderness exists in any portion of the abdominal cavity and if pain is relieved or increased by firm pressure. In **percussion**, the different tones of the stomach, colon, and small intestine will be heard. Abdominal aneurysm gives dullness or flatness unless a distended intestine lies above it. Alterations in shape are determined by **inspection**, particularly enlargement which may be general and symmetrical as in ascites, or partial and irregular from tumors, hypertrophy or distention or retraction, as in extreme emaciation. Distention, if there is any, may be slight, moderate or gross. The causes of distention are said to be the five "fs": flatus, foetus, fat, faeces or fluid. **Auscultation** yields useful information as to the **quality** or peristaltic sounds which may be absent in paralytic ileus or exaggerated in obstructive lesions.

Gastroscopy, laparoscopy, exploratory abdominal operations, sigmoidoscopy, the histamine test, chemical analysis and bacteriological examination of the stools, cholecystogram, straight or specific X-ray pictures of the abdomen (using such contrast media as barium meal) are all more or less routinely used methods of abdominal investigation. The faeces are described as scanty or copious, hard, soft, loose, semi-fluid or fluid, the color of rice-water (as in cholera), black tar, clay or porridge.

Disorders:

Diseases of the digestive system are too many to be given a full list of. Some of them respond to conservative treatment (inflammations of various kinds: gastritis, peritonitis, hepatic cirrhosis, pancreatitis etc.), but most of them require surgical operation (bleeding peptic ulcers, cancer of the stomach and/or colon, acute appendicitis, volvulus of the intestine, gall stones etc.).

Among the many surgical performances concerning the alimentary tract are gastrectomy, gastroenterostomy, duodenectomy, laparotomy, cholelithotomy, cholecystectomy, appendectomy, colostomy and so on.

Different organs of the alimentary tract may be treated for different disorders, for instance:

esophagus – for strictures, atresia or esophageal varices;

stomach – for pyloric stenosis, gastritis, gastric ulcer, cancer, achlorhydria, hyperchlorhydria; dyspepsia etc.;

intestines– for diarrhoea, sprue, constipation, malabsorption, celiac disease, carbohydrate intolerance, ileus, ulcerative colitis (Crohn's disease), magacolon, intestinal obstruction, volvulus, hernia, intussusceptions, appendicitis, diverticulosis, perforation of the intestine, cancer, etc.;

liver –for hepatitis usually heralded by jaundice, cirrhosis, impaired circulation, tumors (often metastatic), secondary effects of amoebic dysentery, bilharzias,

hydatid disease, Weil's disease, malaria, poisoning, cholecystitis, cholelithiasis (gall stones);
pancreas − for pancreatitis, diabetes mellitus, fibrocystic disease.

5. Give detailed answers
1. How would you define the process of digestion? 2. What is a gastroenterologist really concerned with? 3. What are the most frequent gastric disorders? 4. What are the general symptoms of abdominal disorders? 5. What information can you get by palpation? 6. How do you ask the patient about his peristalsis? 7. What are the terms to describe different types of faeces? 8. What kind of information do you get from barium meal and following- through? 9. What can you learn about the patient's state by inspection? 10. What are the routine laboratory methods of abdominal investigation? 11. How is the patient asked to relax his abdomen? 12. What are the causes of distention? 13. What is a clinical picture of esophageal varices? 14. What are the possible types of treatment for peptic ulcers? 15. What are the diagnostic sings of peritonitis and what is the treatment?

III. Word study
6. Write down the names of the inflammatory diseases of
Esophagus, appendix, stomach, liver, peritoneum, pancreas, colon, ileum, gall bladder

7. Write down the adjectives to the following nouns
Tongue, stomach, intestine, esophagus, liver, pancreas, colon, pylorus, duodenum, spleen, ileum, caecum, appendix, pelvis, rectum, mesentery, peritoneum, gland

8. Make up English- Russian pairs
Concern, join, serve, permit, relieve, convert, pass, converge, produce, consume, keep, obtain, consist, respond, include;
Осуществлять, получать, превращать, поглощать, позволять, касаться, соединять, состоять, вырабатывать, ослаблять, включать, реагировать, сходиться, поддерживать, выводить;

9. Fill in the blanks with the proper words from the list below
1. Biliary _____ remains the most common reason for liver transplantation in infants and children. 2. Bleeding from _____ is a medical emergency and treatment should be immediate. 3. A person with _____ can suffer from stomach pains caused by the digestion of food that is not properly broken down by gastric acid. 4. _____, or excess production of HCL, causes delayed or marked-

delayed emptying time of the stomach contents for 6 to 24 hours, or much longer in many cases. 5. The characteristic symptoms of _____ are upper abdominal pain, bloating, fullness, and tenderness on palpation. 6. Most of the time, _____ develops when pressure in the compartment of the residing organ is increased, and the boundary is weak or weakened. 7. _____ occurs when part of the bowel or intestine is wrapped around itself producing a mass like object on the right side of the abdomen during palpation. 8. The presence of pouches on the colon is called _____. 9. Alcoholic _____ develops for between 10% and 20% of individuals who drink heavily for a decade or more. 10. The patients who have ____ with no gall stones have about 50% chance of death if the gall bladder is not quickly removed. 11. In patients with severe attacks of biliary pain associated with _____, cholecystectomy is recommended to prevent such complications as cholecystitis, cholangitis, and pancreatitis.

Diverticulitis, cholelithiasis, atresia, dyspepsia, varices,ccirrhosis, achlorhydria, hernia, hyperchlorhydria, intussusceptions, cholecystitis

10. Provide the words in brackets with the appropriate negative suffix

1. Metabolic (orders) are often rather difficult to treat. 2. All (organic) substances have been found dissolved. 3. (Digestion) is also referred to as (pepsia). 4. The islets of Langerhans are quite (dependent) on the rest of pancreas. 5. Some proteins are (essential), others are (dispensable). 6. Solutions capable of absorbing more soluble material are described as (saturated), those (capable) of doing so are saturated. 7. After that the period of (digestion) repeated with the increasing frequency and severity.

IV. Learn to speak professional medical English

11. Complete the sentences

1. Esophagus is treated for …
2. Stomach is treated for …
3. Intestines are treated for…
4. Liver is treated for …
5. Pancreas is treated for …

V. Learn to translate medical articles

12. Translate the text into Russian

Background: Patients hospitalized for ulcerative colitis (UC) are at high risk for colectomy. Despite growing interest in research, there is no available tool in such research to stratify disease severity or identify patients at high risk for colectomy.

Methods: Using the Nationwide Inpatient Sample (NIS) 2004, we identified patients hospitalized for ulcerative colitis attack. Our primary outcome of interest was undergoing total colectomy. Multivariate logistic regression models were constructed to identify independent predictors of colectomy. From this, a cumulative risk score was developed. Hospitalizations were divided into 3 groups (low, intermediate, high) based on the data of colectomy.

Results: There were a total of 15,142 hospitalizations with a discharge diagnosis of UC included in our study among which 366 patients underwent total colectomy (2.4%). Anemia (odds ratio [OR] 2.13), requirements for blood transfusion (OR 2.22), malnutrition (OR 4.53), and total parenteral nutrition (OR 4.30), were independent predictors of colectomy as were transfer from another hospital (OR 2.06) and admission to a teaching hospital (OR 1.73). The cumulative colectomy risk score ranged from 0-8, with significantly higher risk of colectomy in the high-risk group (13.7%) compared to the intermediate- risk (4.2%, $P < 0.001$) and low-risk (1.3%, $P< 0.0001$) groups.

Conclusion: We propose a simple and novel risk score to stratify the severity of UC hospitalizations and predict colectomy in this population.

Lesson 8. Cardiovascular Diseases

I. Learn to pronounce, write and read English words and medical terms.

1. Write the following words in transcription

Expel, smooth, pump, arise, output, breakdown, pericardium, venule, myocardium, ventricle, pacemaker, valve, hemodynamic, echocardiography, catheter

2. Read the terms

Vein, endocardium, venae cavae, portal vein, septum, sinoatrial node, angiography, arteriole, thrombosis, rupture

3. Learn to pronounce the names of heart diseases and memorize their Russian equivalents

Congenital heart defect, heart failure, cardiac arrest, angina pectoris, acute myocardial infarction, coronary thrombosis, atheroma, arterial hypertension, cardiac arrhythmia, ventricular fibrillation, heart block, cardiogenic shock, cardiac rupture, hypotension, pericarditis, endocarditis, myocarditis, ischemic heart disease

II. Text study

4. Read the text, translate it consulting dictionary

This group of the diseases, probably the commonest of all, involves the circulatory system, i.e. the heart with the blood vessels and to a certain degree the lymphatic system.

The heart is a hollow contractile muscle capable of expelling whatever volume of blood enters it. The principle function of the heart is to pump blood from the veins into the arteries, arterioles and capillaries, and to receive it via the venules, veins and ultimately the superior and inferior venae cavae.

In order to perform this duty the heart is divided into two separate pumps, the right side serving the lung pulmonary or lesser circulation and the left side serving the rest of the body – systemic circulation. Part of the de-oxygenated blood returning from the abdominal organs is deflected to pass through the portal circulatory branch, i.e. via the portal vein to the liver and through the hepatic vein to the inferior vena cava. The cardiac muscle itself is kept supplied with oxygenated blood through the two coronary arteries which arise from the root of the aorta.

Each side of the heart consists of an atrium (auricle), which receives venous blood, and ventricle which ejects it into the arterial system. There is a septum in between the two sides and an orifice in between the atrium and its corresponding ventricle. These orifices and also the outlets of the heart are served by tricuspid, bicuspid

(mitral), pulmonary and aortic valves. The natural pacemaker situated in the zone of extremely active muscle in the wall of the right atrium is known as sinoatrial node (S-A node). The node is stimulated or more usually inhibited by impulses coming from via the sympathetic or vagus nerves from the cardiac center, a set of nerve cells in the medulla oblongata. This center increases the heart rate in response to diminished blood pressure, lack of oxygen, raised body temperature and emotions such as fear or anger.

The two phases of the cardiac action are atrial and ventricular diastole and systole. The myocardium is endowed with specific properties: irritability, contractility, automatism and conduction.

The amount of blood ejected by the heart into the arteries in a systole per minute is called **cardiac output**. The volume of blood pumped by either ventricle at a beat is referred to as the **stroke volume** and it may range from 70 to some 200c.c. on exertion. Cardiac output depends more on the heart rate than on the stroke volume. The more the ventricles are filled in diastole, the more they contract in systole. On the other hand, distention of the atria increases the heart rate. A breakdown of this mechanism is described as **heart failure**.

Other important hemodynamic values include: cardiac index, stroke index, mean aortic pressure, mean pulmonary artery pressure, stroke work index, end-diastolic volume, end-systolic volume, arterial **blood pressure** etc.

Most of these values are recorded by means of **electrocardiography, catheterization, and angiography** or by means of **radiology**. In addition, the position and motion of the heart walls and neighbouring tissues may be graphically recorded by **echocardiography** which uses beams of ultrasonic waves directed through the chest wall.

General symptoms and clinical manifestations of heart diseases

Dyspnoea on effort or at rest is the most usual symptom, sometimes coming in paroxysms (cardiac asthma), and so are palpitations and pericardial pain. Patients often complain of loss of appetite, nausea and vomiting and report nocturia, oliguria and albuminuria. On examination the doctor is more likely to find pitting edema, called so because the swelling, first noticed on the ankles and feet, tends to pit on pressure. Other more serious edematous conditions include ascites (abdominal dropsy), pleural or even pericardial effusion. Other sings of cardiovascular disease include hypertension, cyanosis, hepatomegaly, venous engorgement, period breathing, gallop rhythm, pulses alternant and often atrial fibrillation or flutters, etc.

Some of the main cardiovascular diseases

Congenital heart defects may be due to a number of causes such as undesirable intercommunication between the right and left sides of the heart, obstruction to

ventricular flow as a result of stenosis, pulmonary or aortic valvular, or sub valvular; valvular malformations such as mitral incompetence, etc. Some of the less severe malformations are compatible with life, others, which might lead to disability or early death, can in increasing numbers now be treated surgically.

Heart failure, too, has many causes; although it really means no more than that the heart fails to pump all blood it receives from the veins into the arteries. This may be due to low output, affecting all tissues of the body, or due to congestion in the veins (backward failure).

Cardiac arrest is failure of the heart action to maintain adequate cerebral circulation in the absence of obvious disease.

Angina pectoris and acute myocardial infarction due to coronary thrombosis come under the heading of **ischemic heart disease** (IHD).

In IHD the blood supply to the heart muscle is impaired due to atheroma, a degeneration of the lining of the coronary arteries with loss of elasticity. Patients with angina are predisposed to coronary thrombosis, their condition often being aggravated by associate disorder, such as arterial hypertension. Unless **acute myocardial infarction** leads to sudden death, there may be serious complications such as cardiac arrhythmia; heart block, cardiogenic shock, cardiac rupture, etc.

Generally speaking, heart diseases are due to:

Increased volume of blood to be coped with (e.g. when an incompetent valve allows blood that has already been ejected to leak back thus adding it to the new load arriving from the veins);

Increased resistance to the blood flow

Decreased force– e.g. when the muscular strength of the heart is affected by any debilitating disease, including all sorts of pericarditis, endocarditis, or disease of the myocardium itself.

Effort syndrome, a form of anxiety neurosis, is not really a heart disease in the proper sense of the word, though it is accompanied by characteristic symptoms. The heart is normal with no detectable pathologic changes.

5. Answer the following text-based questions

1. What comes under the heading of the circulatory system? 2. How would you define the heart in terms of its function? 3. What is the anatomical structure of the heart? 4. What is the difference between systemic circulation and pulmonary circulation? 5. What types of heart valves are there? 6. What is the physiological difference between an atrium and a ventricle? 7. What function does the S-A node perform? 8. What happens in diastole as opposed to systole? 9. What are the specific properties of the heart muscle? 10. How would you explain the term “cardiac output”? 11. When do clinicians speak about heart failure? 12. What is

stroke volume? 13. What other hemodynamic values can you name? 14. What is the aim of electrocardiography? 15. What do cardiac patients usually complain of? 16. How do you recognize pitting oedema? 17. What happens in atrial fibrillation and what term is used to describe it? 18. What happens in mitral incompetence? 19. What is the difference between forward failure and backward failure? 20. When do we speak about cardiac arrest? 21. What does the term "ischemic heart disease" imply? 22. What is the difference between cardiac arrest and heart block? 23. What is wrong with the patient who suffers cardiac arrhythmia? 23. What is atheroma? 24. How do such conditions as pericarditis or endocarditis affect the heart muscle? 25. Which are the general causes of heart disease? 26. Why is effort syndrome not considered to be true heart disease?

III. Word study

6. Make up English- Russian pairs of words

Deflect, expel, rate, lead, enter, endow, pump, effusion, line, arise, eject, fail, raise, cope, supply, leak, value, situate

Повышать, происходить, выталкивать, ритм, истечение, поступать, обеспечивать, справляться, выстилать, располагаться, отвод, отклоняться, качать, снабжать, извергать, параметр, быть неспособным, течь

7. Give Russian equivalents of the words

Mitral valve, cardiac output, stroke volume, heart failure, cardiac arrest, angina pectoris, coronary thrombosis, heart block, cardiogenic shock, cardiac rupture, congenital heart defect, acute myocardial infarction, ischemic heart disease

8. Make up pairs of antonyms

Stimulation, loss, hollow, anxiety, effort, obvious, partial, outlet, narrowing, aggravate, oblique, main, sudden, absence, inside, superior

Secondary, direct, slow, outside, gain, inferior, solid, rest, inhibition, unapparent, inlet, distention, presence, complete, relief, calm

9. Make up negative forms using suffixes: im-, in-, un-, non-, de-

Capable, natural, specific, important, direct, desirable, compatible, competent, adequate, efficient, proper, oxygenated, active

10. Make up adjectives

Heart, circulation, diastole, myocardium, valve, vessel, ventricle, lymph, artery, vein, atrium, aorta, auricle

11. Fill in the blanks with the proper words from the list below

1. A ____ is a structural problem in the heart that is present at birth. 2. The condition when blood supply in one artery stops due to a clot formation is known as ____. 3. The term ____ refers to natural death from cardiac causes, caused by abrupt loss of consciousness within one hour of the onset of acute symptoms. 4. _____ is the cessation of normal circulation of blood due to the failure of the heart to contract effectively. 5. ____ is a syndrome manifestation as the inability of the heart to fill with or eject blood due to any structural or functional cardiac conditions. 6. ____ is the thickening of the arteries from the depositing of plaque on the artery walls. 7. ____ is the interruption of blood supply to part of the heart causing some heart cells to die. 8. ____ is the delay in the conduction of electrical current as it passes through the atrioventricular node, bundle of His, or both bundle brunches, all of which are located between the atria and the ventricles. 9. _____ is a laceration or tearing of the walls of the ventricles or atria of the heart or one of the valves of the heart. 10. ____ is a term for any of a large and heterogeneous group of conditions in which there is abnormal electrical activity in the heart. 11. Central ____ is often due to a circulatory or ventilator problem that leads to poor blood oxygenation in the lungs or greater oxygen extraction due to slowing down of blood circulation in the skin's blood vessels. 12. ____ is defined by sustained hypotension with tissue hypoperfusion despite adequate left ventricular filling pressure.

Myocardial infarction, cardiac arrhythmia, coronary thrombosis, cardiogenic shock, cardiac rupture, heart failure, cardiac arrest, sudden cardiac death, atheroma, heart block, cyanosis, congenital heart defect

IV. Learn to speak professional medical English

12. From the list below choose the correct definitions for the following

1. The pericardium is …	1. … is a condition in which a problem with the structure or function of the heart impairs its ability to supply sufficient blood flow to meet the body's needs.
2. The endocardium is …	
3. The heart is …	
4. The myocardium is …	2. … a muscular organ found in all vertebrates that is responsible for pumping blood throughout the blood vessels by repeated, rhythmic contractions.
5. The atrium is…	
6. The auricle is…	
7. The ventricle is…	3. … the middle and the thickest layer of the heart wall composed of cardiac muscle.
8. The septum is…	
9. The heart valves…	4. … a small conical pouch projecting from the upper

10. Diastole is… 11. Systole is… 12. Stroke volume is… 13. Heart failure is… 14. Blood pressure is…	anterior part of each atrium of the heart. 5. … a double-walled sac that contains the heart and the roots of the great vessels. 6. … is the volume of blood pumped from one ventricle of the heart with each beat. 7. … a heart chamber that collects blood from an atrium and pumps it out of the heart. 8. … the upper chamber of each half of the heart. 9. … maintain the unidirectional flow of blood in the heart by opening and closing depending on the difference in pressure on each side. 10. … the innermost layer of tissue that lines the chambers of the heart. 11. … the period of time when the heart fills with blood after contraction. 12. … a phase of the cardiac cycle where the myocardium is contracting in a coordinated manner in response to an endogenous electrical stimulus, and pressure is being generated within the chambers of the heart driving blood flow. 13. … the dividing wall between the right and the left sides of the heart. 14. … is a force exerted by circulating blood on the walls of blood vessels, and is one of the principal vital signs.

13. Read the following text and speak about angina pectoris

Angina pectoris

Angina pectoris is the medical term for the chest pain or discomfort due to coronary heart disease. Angina is a symptom of a condition called myocardial ischemia. It occurs when the heart muscle doesn't get as much blood (hence as much oxygen) as it needs. This usually happens because one or more of the heart's arteries (coronary blood vessels that supply blood to the heart muscle) is narrowed or blocked. Insufficient blood supply is called ischemia.

Angina also can occur in people with valvular heart disease, hypertrophic cardiomyopathy (this is an enlarged heart due to disease) or uncontrolled high blood pressure. These cases are rare, though.

Typical angina is uncomfortable pressure, fullness, squeezing or pain in the center of the chest. This discomfort also may be felt in the neck, jaw, shoulder, back or arm.

Angina often occurs when the heart needs more blood. For example, running to catch a bus could trigger an attack of angina while walking may not. Angina may happen during exercise, strong emotions or extreme temperature. Some people, such as those who experience coronary artery spasm, may have angina when they are resting.

Lesson 9. Endocrinology

I. Learn to pronounce, write and read English words and medical terms.

1. Write the following words in transcription

Adrenocorticotropic hormone, thyrotropic hormone, follicle- stimulating hormone, luteinizing hormone, luteotropic hormone, antidiuretic hormone, somatotropic hormone, thyroid- stimulating hormone, growth hormone, lactogenic hormone

2. Read the terms

Exocrine, parathyroid, adrinohypophysis, vasopressin, oxytocin, myxedema, exophthalmic, tyrosine, iodine, cortisol, androgen, estrogen, progesterone, insulin, glucagon, aldosterone, adrenalin, nor epinephrine

II. Text study

3. Read the text, translate it consulting dictionary

Endocrine or ductless glands as opposed to exocrine glands discharge their products, hormones directly into the blood or lymph in a process called internal secretion. The pituitary, thyroid, parathyroid, and adrenal glands are purely endocrine, whereas the pancreas, the ovaries and testicles combine both functions. The thymus has not been shown to produce any hormone although it has the making of an endocrine gland.

It need be stressed that none of the endocrine glands acts independently of others. The adequate level of various hormones in the blood is maintained by a system of feedback mechanism controlled by the CNS, with the nervous and chemical functions of the body being closely interrelated. Hormones themselves represent a highly specialized and most efficient type of humoral regulation as even their slightest concentration is enough to produce a profound effect on certain physiologic processes, particularly the rate of metabolism. Conversely, endocrine dysfunction invariably results in grave pathological manifestations throughout the body.

Pituitary gland often referred to as the master gland of the body. It is formed by two anatomically quite distinct organs producing between them a variety of vital hormones:

1. Anterior lobe (adenohypophysis) is responsible for the production of:

−STH, somatotropic or growth hormone, lack of which in children causes **pituitary dwarfism** or arrested growth; an excess of SHT leads to **gigantism**, while a similar hyper function in adult life produces acromegaly.

−ACHT, adrenocorticotropic hormone which stimulates the adrenal cortex to secrete cortisol;
−TTH, thyrotropic hormone, also known as thyroid- stimulating hormone TSH, which regulates the functional activity of the thyroid gland;
−FSH, follicle-stimulating hormone, which governs the development of ovarian follicle and spermatogenesis in the testes;
− LH, luteinizing hormone, also called interstitial cells stimulating hormone;
− ICSH, which in conjunction with FSH induces the secretion of estrogens, ovulation and corpus luteum production in females, and that of testosterone in males;
− LTH, luteotropic hormone or prolactin which, among other things, induces the secretion of milk in a fully developed mammary gland – hence the name lactogenic hormone.
Complete functional break- down of the anterior pituitary is the cause of **Simmond's disease,** the simultaneous failure of the thyroid, adrenal and sex glands resembling the state of senility.
2. **Posterior lobe** (neurohypophysis) is known to secrete two hormones:
− ADH, antidiuretic hormone, which causes water to be retained by the kidneys and restored to the blood, thus preventing excessive loss of water in the urine. It has the additional property of causing the blood pressure to raise, hence the alternative name of vasopressin. A deficiency of ADH is the specific cause of **diabetes insipidus**, a rare disorder characterized by polyuria and polydipsia. The defect is remedied by giving ADH by injections or in snuff, nasal drops or spray;
− **Oxytocin** – which acts on the smooth muscle of the uterus at the end of pregnancy, initiates labor and promotes lactation. The two hormones are really built up in the hypothalamus; in the neurohypophysis they are merely stored and secreted into the blood stream.
− **Thyroid gland** consists of two lobes in the anterior portion of the neck, one at either side of Adam's apple, joined at their lower ends by a bridge of glandular tissue. The thyroid produces thyroxin, a hormone derived from iodinated amino acid tyrosine, influencing the basal metabolic rate and acting indirectly on growth and nutrition. There is a feedback between thyroxin and TSH. Disorders include:
Cretinism is a congenital disorder resulting from failure of the thyroid gland to develop. The newborn cretin is usually a normal baby, presumably because he has been able to use thyroxine from his mother's thyroid. After birth his physical and mental development is retarded. The unmistakable signs are: coarse hair and skin, protruding tongue, and pot belly.
Myxedema is thyroid deficiency starting in adult life. The patient, usually a middle-aged woman, suffers from loss of energy and appetite; the body

temperature is low; the skin is dry and puffy, the mind is dulled. All these changes are completely reversed by giving thyroxine.

Simple goiter is an enlargement of the thyroid gland due to lack of iodine in the diet. Large goiters may have to be removed surgically because neighbouring structures (trachea, veins, and nerves) are impaired, or because they are unsightly; simple goiter is epidemic in regions with lack of iodine in the soil.

Toxic goiter (Graves's disease, Basedow's disease) is marked by over activity of the thyroid and increased fuel consumption, with often hardly any noticeable enlargement of the gland. The patient, usually a woman of about 40, becomes irritable and restless, she loses weight, the heart is overactive, and its rhythm may be disturbed. The presence of long acting thyroid stimulator, which is an antibody against thyroid protein, causes the eyes to protrude giving rise to **exophthalmic goiter**.

Parathyroid glands produce parathormone which regulates the concentration of calcium in the blood. Disorders are rare, e.g. **tetany**, the result of parathyroid hypo function, marked by over-excitability of nerve and muscle, with twitching, cramp and tingling sensations; **renal calculi**, and **resorption of bone** due to an excess of parathormone.

4. Give detailed answers

1. What is characteristic feature of endocrine as opposed to exocrine glands? 2.What are hormones in terms of physiology? 3. Which are the purely endocrine glands? 4. How are the thymus and pineal body classified? 5. How is the level of different hormones in the blood maintained? 6. What is the specific property of hormones in the terms of humoral regulation? 7. How does endocrine dysfunction manifest itself? 8. Why is the pituitary gland often described as the master gland in the body? 9. What is the anatomical composition of the pituitary? 10. Which are the hormones secreted by adenohypophysis? 11. What are the clinical effects of STH deficiency or excess of the growth hormone? 12. How does the interaction of FSH and luteinizing hormone affect the body? 13. What is the function of the follicle- stimulating hormone affect the body? 14. What is prolactin and what is it responsible for? 15. Which substantial hormones are secreted by neurohypophysis? 16. Which hormone deficiency is diabetes insipidus due to? 17. Why is oxytocin important in pregnancy? 18. What is anatomical location of the thyroid? 19. What is cretinism due to? 20. Which are the main clinical signs of myxoedema? 21. What is the difference between simple and toxic goiter? 22. What may give rise to exophthalmic goiter?

III. Word study

5. Make up English- Russian pairs

Profound, discharge, combine, congenital, various, manifestation, lack, uptake, govern, directly, retard, failure, grave, promote, purely, invariability, distinct, simultaneously, restore, master, retain, responsible.

Неизменно, поглощение, выделять, различный, одновременно, сочетать, проявление, стимулировать, чисто, ответственный, врожденный, главный, замедлять, удерживать, недостаточность, тяжёлый, глубокий, непосредственно, регулировать, возвращать, недостаток, явный

6. Fill in the blanks with the proper words from the list given below

1. _____ is a hormone secreted by the pituitary gland, usually under conditions of biological stress. 2. _____ stimulates thyroid gland and has been employed in bound cases of hypothyroidism. 3. _____ is responsible for the development of the male characteristics during fetal, neonatal and pubertal maturation. 4. _____ is the most abundant hormone produced by the anterior pituitary lobe, accounting for as much as eight to ten per cent of the dry weight of the gland. 5. ____ regulates the development, growth, pubertal maturation, and reproductive processes in the body. 6. _____ is a hormone produced by the anterior pituitary gland. 7. _____ is a hormone found in the human body and secreted by the parathyroid glands.

Thyrotropic hormone, testosterone, parathormone, Adrenocorticotropic hormone, luteinizing hormone, luteotropic hormone, somatotropic hormone,

IV. Learn to speak professional medical English

7. From the list below choose the definitions for the Russian words in brackets

1. (Единственный) available member of growth hormone receptor antagonists is pegvisomant (Somavert). 2. Dopamine agonists are used for the treatment of acromegaly (особенно) for those who are unresponsive to somatostatin analogues, or for whom they are otherwise contraindicated. 3. It is impossible to treat all symptoms of dwarfism (хотя) individual abnormalities such as bone growth disorders can sometimes be treated through surgery, and some hormone disorders can be treated by medication. 4. Short parents tend to produce short children; (наоборот) persons with dwarfism may produce children of normal height, if the cause of their dwarfism is not genetically transmissible. 5. In general, goiter unassociated with any hormonal abnormalities will (едва ли) cause any symptoms aside from the presence of anterior neck mass. 6. Diagnosis becomes (в конце концов) obvious but there is no effective treatment for the condition. 7. Hormonal deficiency was (только) a result of iodine deficiency in everyday diet.

Although, particularly, ultimately, merely, hardly, the only, conversely

V. Learn to translate medical articles

8. Translate the following text

Diabetic Coma

Diabetic Coma is a severe emergency in which a person is not conscious because the blood glucose is too low or too high.

If the glucose level is too low, the person has hypoglycemia; if the level is too high, the person has hyperglycemia and may develop ketoacidosis.

Patients with diabetes mellitus type 1 are especially prone to Diabetic Coma. Without performing blood glucose test it is difficult to tell with certainty whether the Diabetic Coma is caused by hyperglycemia or hypoglycemia as symptoms are very similar. Overall, the term *Diabetic Coma*refers to the diagnostic dilemma posed when a physician is confronted with an unconscious patient about whom nothing is known except that the patient has diabetes. Studies show that an estimated 2 to 15 per cent of people with diabetes will suffer at least one episode of *diabetic coma* during their lifetimes as a result of severe hypoglycemia.

Diabetic coma was a diagnostic problem before the late 1970s. But with the introduction of glucose meters and rapid blood chemistry analyzers it rarely takes more than a few questions, a quick look, and a glucose meter to determine the cause of the unconsciousness in a patient with diabetes. Laboratory confirmation can usually be obtained in half an hour or less for people with *Diabetic coma.* Diabetic people should understand how diabetic *coma* can occur and the symptoms to watch out for. General guidelines should be followed to ensure that the person does not have another *Diabetic Coma.*

Treatment options for *Diabetic Coma*: Ketoacidotic Diabetic Coma: intravenous fluids, insulin and administration of potassium and sodium. Hyperosmolar Diabetic Coma: plenty of intravenous fluids, insulin, potassium and sodium as soon as possible. Hypoglycaemic Diabetic Coma: administration of the hormone glucagon to reverse the effects of insulin, or glucose given intravenously.

Lesson 10. Emergency Medicine

I. Learn to pronounce, write and read English words and medical terms.

1. Read the words

Emergency, conventional, approach, careful, derangement, respiratory, failure, precise, diagnosis, to assign, personnel, trivial, acquire, identification, visualize, complaint, majority, deceptive

2. Learn to pronounce the following terms and memorize their Russian equivalents

A precise diagnosis, conventional approach, to take a careful history, emergency department, careful examination, respiratory failure, pneumonia, emergency physician, serious disease, chief complaint, to visualize, touch, and auscultate the patient, vital signs and the chief complaint, objective data, cardiac, traumatic, respiratory, current medications, significant blood loss, pre-hospital care systems, to provide therapy, abdominal pain, to be cool and clammy, to pay attention to, to identify the threat to life, vasoconstriction, vasodilatation, in conclusion, without exception

II. Text study

3. Read the text, translate it consulting dictionary

General approach to emergency medicine

Initial priorities

Perhaps more than any other specialty, emergency medicine interfaces with outside agencies and specialties; management is always based on a team approach to care. The emergency medical system interfaces with police, firefighters, news media, transportation authorities, disaster planning agencies etc. Within the emergency department, patient care is provided by a team of professionals, including nursing staff, radiographers, pharmacists, blood bank and clinical laboratory personnel, social workers etc. The emergency doctor must rely on medical colleagues for consultation, post admission care, and post discharge follow-up care. The overall orchestration of personnel and resources for the immediate care of acutely ill or injured patients is the responsibility of the emergency doctor, until the evaluation shows that the patient can be formally transferred to another physician or service.

The conventional approach to patient problems involves taking a careful history, performing a careful examination and obtaining laboratory, radiological and other diagnostic results to lead to proof of a specific diagnosis. This approach does not

work well in the emergency department, because the immediate problem does not involve achieving a specific disease diagnosis but rather influencing a final common pathway of patho-physiological derangement that may be identical for many different diseases. For example, respiratory failure is no different if caused by pneumonia, or fatigue in a patient with asthma. The emergency physician should make a diagnosis if possible and if helpful, but the emergency team has more important priorities than establishing a precise diagnosis.

The first responsibility is to determine which emergency patient is most ill. Patients must

be assessed by someone who is not only skilled in the recognition of serious but subtle illnesses, but who also has the capacity to avoid becoming involved with the details of care. This assessment has become known as TRIAGE.

The next step is to assign the patient to a physical location within the department.

Emergency personnel must learn and relearn that placing the patient in a room usually assigned to trivial problems does not mean that the patient cannot harbour serious disease.

Unfortunately, once a problem is labeled as trivial, re-thinking the case in a more serious fashion is difficult. However, each member of the emergency department must constantly reassess patients to acquire more than one point on the curve of their illness.

The following is an example of a Triage Scale:

Category description to be seen by doctor within

1 Resuscitation Immediately

2 Emergency 10 minutes

3 Urgent 30 minutes

4 Semi-urgent 60 minutes

5 Non-Urgent 2 hours

Three components are necessary for triage and identification of the life-threatened patient.

a) A chief complaint

b) A complete set of vital signs in the field and in the emergency department

c) An opportunity to visualize, touch, and auscultate the patient

The chief complaint, which sometimes cannot be obtained directly from the patient but must be obtained from family members and others, will help categorize the general type of problem (e.g. cardiac, traumatic, respiratory etc).

Vital signs are the most reliable, objective data that are immediately available to emergency department personnel. Vital signs and the chief complaint, when used astriage tools, will identify the majority of life threatened patients. It is essential to be totally familiar with normal vital signs for all age groups. Age, underlying

physical condition, medical problems and current medications (e.g. beta blockers) are important considerations in determining normal vital signs for a patient. For example, a well -conditioned young athlete who has just sustained major trauma and arrives with a resting, supine pulse of 80 must be presumed to have significant blood loss because his normal pulse is probably in the 40-50 range.

Most pre-hospital care systems with a level of care beyond basic transport also provide therapy to patients. Because this therapy usually makes positive changes to the patient's condition, the patient may look deceptively well on arrival in the emergency department.

For example, a 20 year old female with acute onset of left lower quadrant abdominal pain, who is found to be cool and clammy, with a pulse rate of 116 and a blood pressure of 78palpable and who receives 1500 cc of fluid en route to the emergency department, may arrive with normal vital signs and no skin changes. If one does not read or pay attention to the paramedic's description of the patient and the initial vital signs, the presumption could be made that all is well.

Sometimes normal vital signs are not normal. For example, a 20 year old asthmatic patient has a respiratory rate of 14. An asthmatic patient who is dyspnoeic and wheezing should have a respiratory rate of at least 20-30/min. The "normal" respiratory rate of 14 in this setting indicates that the patient is in respiratory failure. This is a classic example of where normal is not normal.

Visualizing, touching and auscultating helps to identify the threat to life i.e. is it the upper airway, lower airway or circulation? Touching the skin is important to determine whether shock is associated with vasoconstriction (hypovolaemic or cardiogenic) or with vasodilatation (septic, neurogenic or anaphylactic). Auscultation will identify threats associated with lower airway (e.g. bronchospasm, tension peumothorax).

In conclusion, obtain the vital signs on every patient without exception.

4. Answer the following text-based questions

1. What does the conventional approach to patient problems involve? 2. Why doesn’t this approach work well in the emergency department? 3. What is the first responsibility of the emergency team? 4.What is the next step? 5. How many components are necessary for triage and identification of the life-threatened the patient? 6. What are these components? 7. What will help categorize the general type of problem (e.g. cardiac, traumatic, respiratory etc)? 8. What are important considerations in determining normal vital signs for a patient? 9. Do visualizing, touching and auscultating help to identify the threat to life? Age, underlying physical condition, medical problems and current medications are important

considerations in determining normal vital signs for a patient. 10.This assessment has become known as TRIAGE.

III. Word study

5. Give Russian equivalents of the words

Vital signs, conventional, traumatic, life-threatened, to identify, responsibility, circulation, skin changes, asthmatic patient, wheezing, a level of care, to determine, shock, a respiratory rate, respiratory failure, lower airway

6. Fill in the blanks with the proper words from the list below

1. Most _____with a level of care beyond basic transport also provide therapy to patients. 2. Vital signs and the chief complaint will identify _____of life threatened patients.3.The_____to patient problems involves taking a careful history, performing a careful examination and obtaining laboratory, radiological and other diagnostic results. *4.*_____obtain the vital signs on every patient without exception. 5. An asthmatic patient who is dyspnoeic and wheezing should have a respiratory rate of _____20-30/min. 6. Age, underlying physical condition, medical problems and current medications are important in determining normal vital signs for a patient. 7.This assessment has become known as_____.

pre-hospital care systems, the majority, conventional approach, In conclusion, at least, considerations, TRIAGE.

IV. Learn to speak professional medical English

7. From the list below choose the correct definitions for the following

1(Возможно)more than any other specialty, emergency medicine interfaces with outside agencies and specialties; management is always based on a team approach to care. 2. (Система оказания экстренной помощи) interfaces with police, firefighters, news media, and transportation authorities, disaster planning agencies etc. 3. Within the emergency department, patient care(предоставляется) by a team of professionals, including nursing staff, radiographers, pharmacists, blood bank and clinical laboratory personnel, social workers etc. 4. (Врач скорой помощи) must rely on medical colleagues for consultation, post admission care, and post discharge follow-up care. 5. The overall orchestration of personnel and resources for the immediate care of acutely ill or injured patients is (обязанность) of the emergency doctor, until the evaluation shows that the patient can be formally transferred to another physician or service.

Emergency medical system, perhaps, is provided, the responsibility, the emergency doctor

V. Learn to translate medical articles

8. Read the following text

Resuscitation of the Newborn

Marked changes in the cardiovascular and respiratory systems occur at birth. The cardiovascular system undergoes a transition from fetal to neonatal circulation. The respiratory system, essentially nonfunctioning in utero, must suddenly initiate and maintain oxygenation and ventilation. The aim of resuscitation is to restore and support cardiopulmonary function.

The vast majority of neonates require no resuscitation beyond maintenance of temperature, suctioning of airway and mild stimulation. Only a small number of neonates require further intervention, and most of these respond to administration of a high concentration of inspired oxygen and ventilation with bag and mask. A few newborns who are severely asphyxiated may require chest compressions, and even fewer need resuscitative medications **presented below:**

An inverted pyramid reflecting relative frequencies of neonatal resuscitation efforts for the newborn that does not have meconium stained amniotic fluid. Note that a majority of newborns respond to simple measures.

Assess and support:

Temperature (warm and dry)

Airway (position and suction)

Breathing (stimulate to cry)

Circulation (heart rate and colour)

Frequently needed

Infrequently needed

Dry, Warm, Position

Suction, Stimulate

Oxygen

Establish Effective Ventilation

Bag - valve mask

Endotracheal Intubation

Chest

Compressions

Medications

Lesson 11. Public health

I. Learn to pronounce, write and read English words and medical terms.

1. Read the words

Medicine, relieve, health, disease, concern, goal, prevention, measure, hazard, practitioner, causes, prevention, cure, science, excess, indolence, labour, disciplines, practice, uncertainty, natural, ensure, quality, equity, professionalism, curriculum,

2. Learn to pronounce the following terms and memorize their Russian equivalents

Clinical medicine, health of populations, public health goals, high quality services for prevention, treatment and care, to control infectious disease risks, environmental hazards, health improvement, to bring benefits, effective medical practitioner, to make a diagnosis, advocate for, use opportunities, costs of treatments, health care problems, the natural history of patients' diseases, to promote health, planning and organization of services, undergraduate medical education, to produce safe and effective doctors, to respect, protect, and fulfill the right of, common interests, national health strategies, ethical issues,

II. Text study

3. Read the text, translate it consulting dictionary

The importance of public health

Clinical medicine is concerned with diagnosing illness, treating disease, promoting health, and relieving pain and distress in individual patients. Public health is concerned with improving the health of populations and reducing inequalities in health. It is commonly defined as (3):

"the science and art of preventing disease, prolonging life and promoting health through the organized efforts of society."

Public health goals can be identified in three main domains:

• *Improving services* is concerned with the organization and delivery of safe, high quality services for prevention, treatment, and care.

• *Health protection* is concerned with measures to control infectious disease risks and environmental hazards (such as chemicals, poisons, and radiation), including public health emergencies.

• *Health improvement* is concerned with societal interventions (e.g. in housing, education, employment, family/community life, and lifestyle) that are not primarily

delivered through health services, aimed at preventing disease, promoting health, and reducing inequalities.
Effective medical practitioners must be concerned with contributing to each set of goals.
The science of public health is therefore concerned with making a diagnosis of a population's health problems, establishing the causes and effects of those problems, and determining effective interventions. The art of public health is to create, advocate for, and use opportunities to
implement effective solutions to population health and health care problems. Prevention is as much a part of the medical role as cure. Doctors have often looked beyond their individual patients to improve the health of the population. Their education at all levels should ensure that they are equipped to make the most of this approach.

Learning about public health makes better doctors

Learning about public health, and the sciences and disciplines underpinning public health brings benefits both to the practice of clinical medicine and to the population. Doctors can learn to practice medicine more effectively, despite clinical uncertainty; by applying critical appraisal skills to their decision making. The application of epidemiology to clinical practice is often called 'clinical epidemiology'. This involves using diagnostic tests efficiently, weighing up the benefits, risks and costs of treatments, and understanding the natural history of patients' diseases to help prevent disease and promote health in individual patients. Doctors with a clear understanding of their role within the wider context of health and social care will influence the planning and organization of services. They can ensure that the development and delivery of health service interventions will benefit patients, and advocate for interventions that will make a difference to large numbers of people.

The sciences and disciplines that underpin public health

- Epidemiology & Demography
- Health Economics
- Medical Statistics
- Sociology, Psychology & Management Sciences

The goals of undergraduate public health education

Undergraduate medical education aims to produce safe and effective doctors. The public health curriculum aims to develop many of the attributes required of an

independent practitioner in defining medical professionalism, a Working Party (2005) of the Royal College of Physicians (RCP) noted that the core values of:

"integrity, compassion, altruism, continuous improvement, excellence, working in partnership with members of the wider healthcare team……underpin the science and practice of medicine,

form the basis for a moral contract between the medical profession and society. Each party has a duty to work to strengthen the system of healthcare on which our collective human dignity depends."

This moral contract is particularly relevant to deliver public health goals, including improving health care quality. In addition, equity is a core value in public health. Mindful of human rights, doctors should aim to respect, protect, and fulfill the right of all groups to best possible health. In recommending a national forum to lead on giving a united view from the medical profession about 'health', the RCP Working Group considered that:

"Common interests, which reflect common values, include national health strategies; the services and resources required to meet the future health needs of the population; ethical issues; horizon scanning; public health advocacy; and the structural organization of the health system."

The General Medical Council's 'attributes of the independent practitioner' includes:

- *"…reasoning and judgment in the application of knowledge to the analysis and interpretation of data, in defining the nature of a problem, and in planning and implementing a*

strategy to resolve it;

- *…knowledge of the physical, behavioral, epidemiological and clinical sciences upon which medicine depends;*
- *…understanding of the etiology and natural history of diseases;*
- *…understanding of the social, cultural and environmental factors which contribute to health or illness, and the capacity of medicine to influence them;*
- *…understanding the principles, methods and limitations of preventive medicine and health promotion;*
- *…recognition of the need for the doctor to collaborate in prevention, diagnosis, treatment and management with other health care professionals and with patients themselves;*
- *…appropriate use of diagnostic and therapeutic resources, and appreciation of the economic and practical constraints affecting the provision of health care;*
- *…understanding of the contribution of research methods, and interpretation and application of others' research in the doctor's own specialty."*

No single set of educational objectives will necessarily apply similarly to every medical school, as educational contexts differ. The updated setoff public health educational goals [Box 3] should, applied flexibly, also contribute to contemporary expectations of medical professionalism.

Educational goals that can be used to develop the public health medicine curriculum.

Medical students should be able to:

- *discuss the nature of health, disease, and their population determinants;*
- *demonstrate a population perspective on health, disease, and medical treatment;*
- *describe the principles and practice of health promotion and disease prevention;*
- *use epidemiology, data handling, and public health skills in the practice of evidence-based clinical medicine;*
- *outline methods of communicable disease control and the scope of the doctor's role and responsibilities in health protection;*
- *describe the principles and practice of population health needs assessment, health care planning, resource allocation, and healthcare evaluation;*
- *define the key features of the National Health Service as a healthcare system subject to organizational change;*
- *discuss the achievements, potential, and ethics of public health, and lessons to be learnt from how the public health function has developed.*

4. Answer the following questions

1. What is clinical medicine concerned with? 2. What is public health concerned with? 3.How can public health goals be identified? 4. What is health improvement concerned with? 5. What must effective medical practitioners be concerned with? 6. What does learning about public health bring? 7. What does clinical epidemiology involve? 8. What are the sciences and disciplines that underpin public health? 9. What is the aim of undergraduate medical education? 10.What should medical students be able to do?

III. Word study

5. Give Russian equivalents of the words

Clinical medicine, be concerned with, illness, the key features, disease prevention, the provision of health care; research methods, environmental factors, effective doctors, health care planning, therapeutic resources, to influence, the analysis and interpretation of data, to collaborate, health care professionals, to discuss, to demonstrate, to describe, to define

заболевание, главные признаки, профилактика заболевания, методы научного исследования, анализ и интерпретация данных, факторы окружающей среды, оказание медицинской помощи, квалифицированный врач, сотрудничать, обсуждать, клиническая медицина, возможности терапии, влиять, заниматься чем-либо, работники здравоохранения, описывать, определять, показывать, планирование лечения;

6. Fill in the blanks with the proper words from the list below

1. "_____, which reflect common values, include national health strategies. 2. Medical students should be able _____the nature of health, disease, and their population determinants.3. _____ aims to produce safe and effective doctors. 4. The application of epidemiology to clinical practice is often called _____. 5. The science of public health is therefore concerned with _____ of a population's health problems, establishing the causes and effects of those problems, and determining effective interventions. 6. Learning about public health, and the sciences and disciplines underpinning public health brings _____ both to the practice of clinical medicine and to the population. 7. This moral contract is particularly relevant to deliver public health goals, including improving _____. 8.Doctors have often looked beyond their individual patients_____ the health of the population. 9. Their education at all levels should ensure that they are equipped to make the most of this _____.

To improve, health care quality, to discuss, common interests, approach, undergraduate medical education, making a diagnosis, clinical epidemiology' benefits, health care quality.

7. Form the nouns, using suffixes: -ion, -ment, -ance

To improve, to equip, to produce, to determine, to educate, to reflect, to prevent, to achieve, to demonstrate, to describe, to define, to limit, to judge, to assess, to depend

IV. Learn to translate medical articles

8. Read the following text

Maintaining excellence

The United Kingdom has a strong tradition of public health practice and education. This needs reinforcing, particularly by medical schools striving to achieve educational excellence despite rapid changes, rising expectations, and reduced resources. A central challenge remains how to excite interest in clinical students

whose focus is understandably oriented towards the clinical care of individual patients.

Some topics that might generate enthusiasm include:

• International public health – electives may provide particular exposure to major global burdens of disease.

• Politics of health – contemporary health policy – What needs to change to tackle health inequalities?

• Health protection – What do all doctors need to do to fulfill their responsibilities to control communicable disease and prevent harm from environmental hazards?

• Research and data analysis – How might they make a big difference to improving the quality of clinical care? The breadth of public health disciplines and the way they can overlap with many other themes in contemporary medical undergraduate curricula ('Patients in society', 'Personal and professional development', etc.) can make the topic seem disparate. Overarching frameworks can help knit the subject together, reinforce elements of a coherent public health curriculum, and provide a way of tracking spiral progression of learning (e.g. Liverpool's 'Seven Pointers'

The three domains – health and social services improvement, health protection, health improvement and addressing health inequalities –provide another familiar framework around which to present public health activity.

Contemporary examples ("Avian 'flu', not the Broad Street pump –again!") may well engage students' interest, but a sense of history in public health (and in medicine, generally) – as captured in landmark studies – helps place recent health policy and technological development in its proper context. Diversity in individual learning approaches suggests that, whatever the overall educational philosophy of the whole program, a judicious mix of different methods – including small group and project work, practical experience, etc – are more likely to meet students' needs.

Lesson 12. Gynecology

I. Learn to pronounce, write and read English words and medical terms.

1. Read the words

Techniques, female, gynecological, ultrasound, characterize, uterine, ovarian, origin, criteria, benign, malignant, endometrium, procedure, through, guidance, ectopic, pregnancy, sonohysterography, malformation, infertility, abnormality, diagnosis, trimester, gestational, hydrocephalus, anencephaly, myelomeningocoele, achondroplasia, dwarfism, chromosomal.

2. Learn to pronounce the following terms and memorize their Russian equivalents

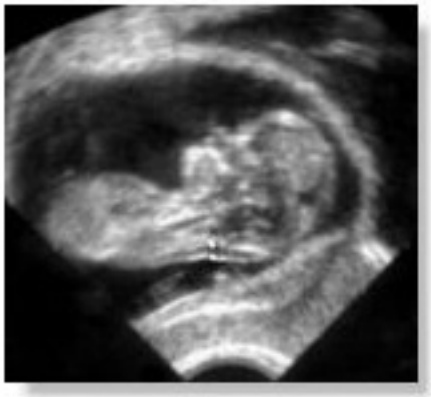
Examination techniques, the clinical indications, the imaging findings, gynecological problems, female pelvis, information of basic importance, endometrial cavity, pelvic inflammatory disease, ectopic pregnancy, contributing factors of female infertility, acute pelvic pain, to detect pathological changes, the integrity of the reproductive tract, via the transvaginal route, to monitor cyclic changes of pelvic organs, normal physiology, pathological situations, indispensible, the localization of the site of the placenta, to guide infertility treatment, prenatal diagnosis

II. Text study

3. Read the text, translate it consulting dictionary

Diagnosis of fetal malformation

This paper reviews the various examination techniques, the clinical indications, and the imaging findings for US studies of the female pelvis in patients with gynecological problems. Ultrasound, in fact, is the preferred imaging modality in the study of the female pelvis, and provides information of basic importance in detecting and characterizing pelvic masses of uterine, ovarian, or adnexal origin, providing also criteria useful in predicting their benign vs. malignant nature. In patients with abnormal bleeding, transvaginal US helps in determining the presence of morphological and structural changes of the endometrium and, with the use of sonohysterography, provides excellent



measurment of the nuchal translucency

delineation of the endometrial cavity, guiding appropriate planning of therapeutic procedures. Ultrasound plays a very important role in the evaluation of patients with acute pelvic pain. It allows identification of ovarian torsion and has both diagnostic and therapeutic capabilities in patients with pelvic inflammatory disease through guidance of abscess drainage via the transvaginal route. In suspected ectopic pregnancy, US, together with quantitative measurements of hCG levels, can be considered the best imaging procedure to guide to the diagnosis. Ultrasound has an important role also in the study of female infertility. In this field it can be used to identify and document the integrity of the reproductive tract as a conduit for the passage of gametes and embryos, to detect pathological changes that may be causes or contributing factors of female infertility, to monitor cyclic changes of pelvic organs to document normal physiology or pathological situations, and to guide infertility treatment.

1. Diagnosis of fetal malformation.

Many structural abnormalities in the fetus can be reliably diagnosed by an ultrasound scan, and these can usually be made before 20 weeks.

Common examples include hydrocephalus, anencephaly, myelomeningocoele, achondrplasia and other dwarfism, spina bifida, exomphalos, Gastroschisis, duodenalatresia and fetahydrops.

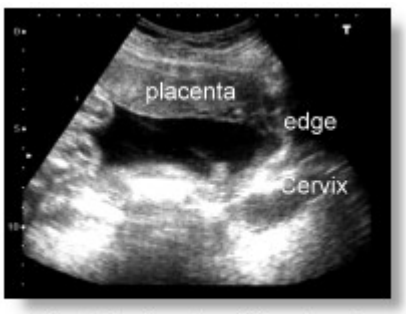
With more recent equipment, conditions such as cleft lips/ palate and congenital cardiac abnormalities are more readily diagnosed and at an earlier gestational age. First trimester ultrasonic 'soft' markers for chromosomal abnormalities such as the absence of fetal nasal bone, an increased fetal nuchal translucency (the area at the back of the neck) are now in common use to enable detection of Down syndrome fetuses.


amniocentesis

.Ultrasound can also assist in other diagnostic procedures in prenatal diagnosis such as amniocentesis, chorionic villus sampling, cordocentesis (percutaneous umbilical blood sampling) and in fetal therapy.

2. Placental localization.

Ultrasonography has become indispensible in the localization of the site of the placenta and determining its lower edges, thus making a diagnosis or an exclusion of placenta previa. Other placental abnormalities in conditions such as diabetes, fetal hydrops, Rh isoimmunization and severe intrauterine growth retardation can also be



determining the edge of the placenta in placenta previa

assessed.

3. Multiple pregnancies.

In this situation, ultrasonography is invaluable in determining the number of fetuses, the chorionicity, fetal presentations, evidence of growth retardation and fetal anomaly, the presence of placenta previa, and any suggestion of twin-to-twin transfusion.

With specially designed probes, ultrasound scanning can be done with the probe placed in the vagina of the patient. This method usually provides better images (and therefore more information) in patients who are obese and/ or in the early stages of pregnancy. The better images are the result of the scanhead's closer proximity to the uterus and the higher frequency used in the transducer array resulting in higher resolving power. Fetal cardiac pulsation can be clearly observed as early as 6 weeks of gestation.

Vaginal scans are also becoming indispensible in the early diagnosis of ectopic pregnancies. An increasing number of fetal abnormalities are also being diagnosed in the first trimester using the vaginal scan. Transvaginal scans are also useful in the second trimester in the diagnosis of congenital anomalies.

Doppler Ultrasound

The Doppler shift principle has been used for a long time in fetal heart rate detectors. Further developments in Doppler ultrasound technology in recent years have enabled a great expansion in its application in Obstetrics, particularly in the area of assessing and monitoring the well-being of the fetus, its progression in the face of intrauterine growth restriction, and the diagnosis of cardiac malformations.

Detecting heartbeat with doppler

Doppler ultrasound is presently most widely employed in the detection of fetal cardiac pulsations and pulsations in the various fetal blood vessels. The "Doptone" fetal pulse detector is a commonly used handheld device to detect fetal heartbeat using the same Doppler principle.

4. Give detailed answers

1. What does this paper review? 2. What is ultrasound in fact? 3. What does transvaginal US help to determine? 4. What plays a very important role in the evaluation of patients with acute pelvic pain? 5. What can be reliably diagnosed by an ultrasound scan? 6. What are the common examples of structural abnormalities in the fetus? 7. What conditions can be diagnosed with more recent equipment? 8. What method usually provides better images and therefore more information in

patients who are obese and/ or in the early stages of pregnancy? 9. When can fetal cardiac pulsation be clearly observed? 10.In what cases are vaginal scans also becoming indispensible? 11. What principles have been used for a long time in fetal heart rate detectors? 12. What have further developments in Doppler ultrasound technology in recent years enabled?

5. Make up English- Russian pairs

Ectopic pregnancies, fetal heart rate, ultrasound technology, acute pelvic pain, vaginal scans, the well-being of the fetus, ultrasound scanning, the evidence of growth retardation and fetal anomaly, the presence of placenta previa, the diagnosis of congenital anomalies, further developments, to provide better images, to become indispensible, in the early stages of pregnancy, the diagnosis of cardiac malformations, an increasing number of fetal abnormalities, higher resolving power, female infertility, to provide information of basic importance, identification of ovarian torsion

Сердцебиение плода, внематочная беременность, острая тазовая боль, возрастающее число патологии плода, УЗИ технологии, вагинальное исследование, признаки задержки развития и патологии плода, состояние плода, выявление врождённой патологии, дальнейшее развитие, УЗИ, на ранних сроках беременности, давать лучшее изображение, выявление сердечной патологии, более высокая степень разрешения, женское бесплодие, предоставлять важную информацию, определение разрыва яичника, предлежание плаценты при раннем сроке беременности, быть незаменимым.

6. Fill in the blanks with the proper words from the list below

1. This paper reviews the various _____, _____, and the imaging findings for US studies of the female pelvis in patients with gynecological problems. 2. Vaginal scans are also becoming indispensible in _____. 3. In patients with _____, transvaginal US helps in determining _____ morphological and _____ of the endometrium. 4. With specially _____, ultrasound scanning can be done with the probe placed in the vagina of the patient. 5. Transvaginal scans are also useful in _____ in the diagnosis of congenital anomalies. 6. Doppler ultrasound is presently most widely employed in _____ fetal cardiac pulsations and pulsations in the various fetal blood vessels. 7. Ultrasound plays a very important role in the evaluation of patients with _____. 8. Ultrasound has an important role also in the study of _____.

The second trimester, the early diagnosis of ectopic pregnancies, designed probes, examination techniques, the clinical indications, female infertility, abnormal bleeding, the detection of, the presence of, acute pelvic pain, structural changes

IV. Learn to translate medical articles

7. Read the following text

Ovary

The position of the ovary is variable, depending on the length of the infundibulopelvic ligament, the presence or absence of adhesions, and other anatomic abnormalities that may displace the ovary. Usually, the ovaries lie in a lateral position to the uterus and are identifiable by scanning in transverse or longitudinal planes lateral to the uterine corpus. Identification of the internal iliac vessels with transvaginal ultrasonography is helpful in identifying the appropriate location of the ovary, but manipulation of the scanning transducer to bring out the full extent of the ovarian echo frequently is necessary. During transvaginal scanning, the manipulation should be performed slowly, and patient cooperation is helpful. In the absence of pelvic adhesive disease, the ovary moves in response to transducer manipulation.

With high-resolution ultrasonography, the ability to monitor follicular development exists. Follicles are clearly visible in most ovaries in women of reproductive age and appear as echo-sparse, well-circumscribed areas within the ovarian stroma, varying between 5 and 20 mm in diameter (Fig. 6). Ultrasonographic follicular monitoring has become an integral aspect of ovulation induction protocols by allowing correlation of serum estradiol levels with follicular diameter during gonadotropin stimulation. A follicular diameter of 18 to 22 mm is characteristic of a periovulatory follicle.

Lesson 13. Health Psychology

I. Learn to pronounce, write and read English words and medical terms.

1. Read the words

Psychology, emphasize, consequences, theory, behaviour, exercise, diet, cancer, cholesterol, pressure, failure, death, alcohol, careless, consumption, psychology, experience, trigger, exacerbate, alleviate, social, nausea, vomiting, anxiety, depression, identify, nature, either, originate, involuntary, regard, species, vaccination, surgery, chemotherapy, radiotherapy, qualitatively, mind, perspective, throughout, challenges,

2. Read the following terms and memorize their Russian equivalents

The theory of evolution, biological beings, biomedical model of medicine, the natural world, biological changes, a biological identity, external force, in terms, cause physical changes, according to, vaccination, surgery, chemotherapy, radiotherapy, nausea, vomiting, anxiety, physical matter, skin, muscles, bones, brain, organs, feelings, thoughts, psychological consequences, for example, psychosomatic medicine, relationship, consequences of illness, to contribute to, integration of the mind and body.

II. Text study

3. Read the text, translate it consulting dictionary

The Background to Health Psychology

During the nineteenth century, modern medicine was established. 'Man' (the nineteenth century

term) was studied using dissection, physical investigations and medical examinations.

Darwin's thesis, *The Origin of Species*, was published in 1856 and described the theory of evolution. This revolutionary theory identified a place for Man within Nature and suggested that we were part of nature, that we developed from nature and that we were biological beings. This was in accord with the biomedical model of medicine, which studied Man in the same way that other members of the natural world had been studied in earlier years. This model described human beings as having a biological identity in common with all other biological beings.

What Is The Biomedical Model?

The biomedical model of medicine can be understood in terms of its answers to the following questions:

_ *What causes illness?* According to the biomedical model of medicine, diseases either come from outside the body, invade the body and cause physical changes within the body, or originate as internal involuntary physical changes. Such diseases may be caused by several factors such as chemical imbalances, bacteria, viruses and genetic predisposition.

_ *Who is responsible for illness?* Because illness is seen as arising from biological changes beyond their control, individuals are not seen as responsible for their illness. They are regarded as victims of some external force causing internal changes.

_ *How should illness be treated?* The biomedical model regards treatment in terms of

vaccination, surgery, chemotherapy and radiotherapy, all of which aim to change the

physical state of the body.

_ *Who is responsible for treatment?* The responsibility for treatment rests with the medical profession.

_ *What is the relationship between health and illness?* Within the biomedical model, health

and illness are seen as qualitatively different – you are either healthy or ill, there is no continuum between the two.

_ *What is the relationship between the mind and the body?* According to the biomedical model of medicine, the mind and body function independently of each other. This is comparable to a traditional dualistic model of the mind–body split. From this perspective, the mind is incapable of influencing physical matter and the mind and body are defined as separate entities. The mind is seen as abstract and relating to feelings and thoughts, and the body is seen in terms of physical matter such as skin, muscles, bones, brain and organs. Changes in the physical matter are regarded as independent of changes in state of mind.

_ *What is the role of psychology in health and illness?* Within traditional biomedicine, illness may have psychological consequences, but not psychological causes. For example, cancer may cause unhappiness but mood is not seen as related to either the onset or progression of the cancer.

The Twentieth Century

Throughout the twentieth century, there were challenges to some of the underlying assumptions of biomedicine. These developments have included the emergence of psychosomatic medicine, behavioural health, behavioural medicine and, most recently, health psychology. These different areas of study illustrate an increasing role for psychology in health and a changing model of the relationship between the mind and body.

Psychosomatic medicine

The earliest challenge to the biomedical model was psychosomatic medicine. This was developed at the beginning of the twentieth century in response to Freud's analysis of the relationship between the mind and physical illness. At the turn of the century, Freud described a condition called 'hysterical paralysis', whereby patients presented with paralyzed limbs with no obvious physical cause and in a pattern that did not reflect the organization of nerves. Freud argued that this condition was an indication of the individual's state of mind and that repressed experiences and feelings were expressed in terms of a physical problem. This explanation indicated an interaction between mind and body and suggested that psychological factors may not only be consequences of illness but may contribute to its cause.

Behavioural health

Behavioural health again challenged the biomedical assumptions of a separation of mind and body. Behavioural health was described as being concerned with the maintenance of health and prevention of illness in currently healthy individuals through the use of educational inputs to change behaviour and lifestyle. The role of behaviour in determining the individual's health status indicates an integration of the mind and body.

4. Give detailed answers

1. When was modern medicine established? 2. What did Darwin's describe in his thesis "*The Origin of Species"?*3.What causes illness?4. Who is responsible for illness?5. How should illness be treated? 6. Who is responsible for treatment? 7. What is the relationship between health and illness? 8. What is the role of psychology in health and illness?9. What were there throughout the twentieth century? 10. What do these different areas of study illustrate? 11. What was the earliest challenge to the biomedical model? 12. What condition did Freud describe? 13. What does the role of behaviour in determining the individual's health status indicate?

III. Word study

5. Make up English- Russian pairs

Modern medicine, in health and illness, traditional biomedicine, biomedical model, health status, healthy individuals, the role of behaviour, psychological factors, paralyzed limbs, to be responsible for, areas of study, to express in terms of, physical matter, chemotherapy, nausea, vomiting, anxiety, to be regarded as.

Роль поведения, биомедицинская модель, здоровые люди, физиологические факторы, традиционная биомедицина, современная медицина, парализованные конечности, отвечать за что-либо, рассматривать, области исследования, выражать в понятиях, физическая материя, тошнота, беспокойство, химиотерапия, рвота.

6. Give Russian equivalents of the words

century, illness, mind, interaction, physical illness, recently, developments, invade, disease, psychological, comparable, cancer, a pattern, obvious, currently, reflect, response, internal, mood, a separation, treatment, challenge, argue, between, chemical imbalances, victims, lifestyle

7. Fill in the blanks with the proper words from the list below

1.This revolutionary theory _____a place for Man within Nature. 2. The role of behavior in determining the individual's _____ indicates an integration of the mind and body. 3. The biomedical model of medicine can be understood _____ its answers to thefollowing questions. 4. For example, cancer may cause unhappiness but ____ is not seen as related to eitherthe onset or progression of the cancer. 5. Such diseases may becaused by several factors such as chemical imbalances, bacteria, viruses and _____. 6. The earliest _____ to the biomedical model was psychosomatic medicine. 7. What is the _____ between health and illness? 8. These different _____ illustrate an increasing role forpsychology in health and a changing model of the relationship between the mindand body. 9. From this_____, the mind is incapable of influencing physical matter and the mind andbody are defined as separate entities. 10. Behavioural health was described as being concerned with the _____of health and prevention of illness in currently healthy individuals throughthe use of educational inputs to change behaviour and lifestyle.

Maintenance , identified, genetic predisposition, health status, mood, in terms of, relationship, challenge, perspective, areas of study,

IV. Learn to translate medical articles

8. Read the following text

What Are The Aims Of Health Psychology?

Health psychology emphasizes the role of psychological factors in the cause, progressionand consequences of health and illness. The aims of health psychology can be dividedinto understanding, explaining, developing and testing theory and (2) putting thistheory into practice.

1 *Health psychology aims to understand, explain, develop and test theory by:*

(a) Evaluating the role of behavior in the etiology of illness. For example:

_ Coronary heart disease is related to behaviors such as smoking, food intake,lack of exercise.

_ Many cancers are related to behaviors such as diet, smoking, alcohol andfailure to attend for screening or health check-ups.

_ A stroke is related to smoking, cholesterol and high blood pressure.

_ An often overlooked cause of death is accidents. These may be related to alcohol consumption, drugs and careless driving.

(b) Predicting unhealthy behaviours. For example:

_ Smoking, alcohol consumption and high fat diets are related to beliefs.

_ Beliefs about health and illness can be used to predict behaviour.

(c) Evaluating the interaction between psychology and physiology. For example:

_ The experience of stress relates to appraisal, coping and social support.

_ Stress leads to physiological changes which can trigger or exacerbate illness.

_ Pain perception can be exacerbated by anxiety and reduced by distraction.

(d) Understanding the role of psychology in the experience of illness. For example:

_ Understanding the psychological consequences of illness could help toalleviate symptoms such as pain, nausea and vomiting.

_ Understanding the psychological consequences of illness could help alleviatepsychological symptoms such as anxiety and depression.

Part 2

Lesson 14. Surgery

I. Learn to pronounce, write and read English words and medical terms.

1. Read the words

Conservative, surgical, management, patellofemoral, syndrome, improvement, misalignment, intervention, remain, questionable, kinetic, chain, exercise, flexibility, whether, exclusively, strength, muscle, length, patient, to participate, adjunctive, strengthening, stretching, beneficial, prediction, decision, orthoses, toe, modification, mind, approach, similar, reason, decrease, knee, anterior

2. Learn to pronounce the following terms and memorize their Russian equivalents

Patellofemoral pain,conservative management, a cause, dysfunction, physical therapist, diagnostic imaging, surgical interventions, hip flexion strengthening, a treatment program, open kinetic chain, closed kinetic chain, strength and muscle length, patellar taping, an off-the-shelf foot orthotic, passive great toe extension, decrease in pain, a control group, serious negative effects, to decrease the pain or dysfunction completely.

II. Text study

3. Read the text, translate it consulting dictionary

Review Of The Outcomes Of Surgical Intervention Vs. Conservative Intervention In The Treatment Of Anterior Knee Pain

In the articles reviewed regarding conservative versus surgical management of patellofemoral pain, all of the articles suggested conservative management should be the first attempt. This statement is based on the fact that the cause of patellofemoral pain syndrome is uncertain and can be caused by an array of possible dysfunctions. Calpur et al (2002) reported that surgical intervention should be performed as the last option after conservative management has failed. Physical therapists can treat conservatively until improvements are no longer apparent, then referral for diagnostic imaging may be necessary to

identify another possible cause. Physical therapy may not be able to correct anatomical misalignments; therefore, patients with these types of dysfunctions would be candidates for surgical interventions. According to Bruce and Stevens (2004), patient's reported full satisfaction with the rotational osteotomies of the femur and tibia, however, the outcome measures used in this study were not valid, reliable or functionally related. Based on the poor research design of the two surgical articles, the benefits of surgical outcomes remain questionable.

Patellofemoral pain would be best treated with conservative interventions. A treatment program including both open kinetic chain (OKC) and closed kinetic chain (CKC) exercises focusing on hip flexion strength has shown to decrease pain (Tyler et al, 2006). The study also noted that improvements in flexibility of iliotibial band (ITB) and iliopsoas muscles contributed to decreased patellofemoral pain. However, it remains to be determined whether a treatment protocol that exclusively focuses on hip flexion strengthening and ITB and iliopsoas stretching would prove more effective in the treatment of patellofemoral pain than the comprehensive protocol used in this study. Witvrouw et al (2000) reported no significant differences in improvements between OKC compared to CKC exercises with both types of exercise improving pain, function, strength and muscle length.

If patients are willing to participate in an exercise program, patellar taping as performed in the study by Whittingham (2004) would be an effective adjunctive therapy to aid in improving acute patellofemoral pain. If tape is applied correctly, patellar taping is a safe addition to an exercise program consisting of strengthening and stretching and can be beneficial for physical therapists to try with their patients. However, physical therapists need to reinforce to their patients that taping is not a cure and adherence to their home exercise program is essential. Another possible adjunct to the exercise program is foot orthoses. Physical therapists may be able to use the following three predictions in their decision to recommend an off-the-shelf foot orthotic: forefoot valgus alignment of greater than equal to 2°, passive great toe extension of less than or equal to 78°, and navicular drop of less than or equal to 3 mm (Sutlive et al, 2004). Seventy-two percent of the 45 subjects reported at least a 50% decrease in pain with orthotic use and activity modification. However, the navicular drop and forefoot to rearfoot alignment measurements have low interrater reliability, in addition to the lack of a control group in the study. Therefore, activity modification may have given a false sense of improvement when using the orthotic. With this in mind, an educational approach similar to that of patellar taping is needed. Orthotics should not cause any serious negative effects in patients and for that reason can be used as an adjunct to physical therapy. Again, patients need to understand that orthotic or tape use alone will not decrease their pain or dysfunction completely.

4. Give detailed answers

1. What did the articles review? 2. What is this statement based on? 3. What did Calpur et al report in 2002? 4. How long can physical therapists treat conservatively? 5. In what case would patients with these types of dysfunctions be candidates for surgical interventions? 6.What treatment program has shown to decrease pain? 7. What would be an effective adjunctive therapy to aid in improving acute patellofemoral pain? 8. What does an exercise program consist of?9. What is another possible adjunct to the exercise program? 10. What may physical therapists be able to use? 11. When may activity modification have givena false sense of improvement?12. Why can orthoticsbe used as an adjunct to physical therapy?

III. Word study

5. Make up English- Russian pairs

Regard, outcomes, conservative management, statement, attempt, acutepain, strengthening and stretching, significant differences, to participate, measurements, in addition to, a control group, great toe extension, activity modification, serious negative effects, decrease pain or dysfunction completely

6. Fill in the blanks with the proper words from the list below

1. If tape is applied _____, patellar taping is a safe addition to an exercise program consisting of _____ and can be beneficial for physical therapists to try with their patients. 2. With this in mind, an educational ____ similar to that of patellar taping is needed. 3. However, physical therapists need to reinforce to their patients that taping is not a cure and adherence to their home exercise program is _____.4.Seventy-two percent of the 45 subjects _____at least a 50% decrease in pain with orthotic use and activity _____.5. Based on the poor research design of the two _____articles, the benefits of surgical _____remain questionable. 6. The study also noted that _____ in flexibility of iliotibial band (ITB) and iliopsoas muscles contributed to decreased patellofemoral pain. 7. Physical therapists can treat _____ until improvements are no longer apparent, then referral for diagnostic imaging may be necessary _____ another possible cause.

to identify, strengthening and stretching, essential, approach, improvements, outcomes, conservatively, correctly, modification, surgical, reported

IV. Learn to speak professional medical English

7. Complete the following sentences

1. However, physical therapists need to…

2. Physical therapists may be able to use…
3. This statement is based on the fact that…
4. Again, patients need to understand that…
5. Based on the poor research design of the two surgical articles…
6. Patellofemoral pain would be best treated with…
7. With this in mind, an educational approach similar to…

V. Learn to translate medical articles

8. Read the following text

Surgery

Treatment of injuries or diseases by operative techniques is the subject of surgery.

The surgeon has always been an integral part of medical science. Early medical texts are devoted to records of surgical cases. Strangely, however, the great advances in surgery have been dependent on medical discoveries in other fields. These advances include the discovery of ether anesthesia by Morton and Long in 1847; the discovery of principle of antisepsis by Joseph Lister in 1865-87, and the application of rubber gloves introduced by Halstead. The use of blood transfusion, the control of fluid in the body and the use of drugs for various symptoms have also aided success in surgery.

Not many years have passed since the time when few surgeons dared to invade the anterior of the abdomen.

Today every portion of the human body has been invaded successfully. The surgery of today is called physiological surgery and is aimed at restoring normal function of various organs and tissues when these functions have failed.

Lesson 15.Traumatology

I. Learn to pronounce, write and read English words and medical terms.

1. Read the following words and terms

Elderly, accident, further, coloration, raw, merely, blow, compression, contused, casually, bruising, ultraviolet, frostbite, injured, damage, radium, viable, recipient, fracture

II. Text study

2. Read the text, translate it consulting dictionary

Fractures

A presence of a fracture should be suspected if, following an injury, the patient complains of severe localized pain and tenderness in the region of a bone on movement. A simple fracture is one in which there is no skin wound directly communicating with the bone at the fracture site. The term does not amply that the fracture will be easy to manage, or will unite rapidly. A compound fracture is one where there is a skin wounddirectly communicating with the bone ends. A comminuted fracture is present when the bone has been broken into more than two fragments. A "greenstick" fracture is an incomplete fracture occurring when a long bone is broken on the convex side, but buckled on the concave. They can only occur in the growing bones of children where there is some springiness present. A pathological fracture is one occurring in a bone rendered abnormally fragile because of a pathological process already taking place within it. A stress fracture may occur in bones subjected to abnormal stress.

Complications of fractures consist in mal-union, delayed union or non-union. The early complications of a fracture all occur in the surrounding soft tissues, either due to damage from within , the bone ends damaging important structures, or from without as a result of the direct violence of the injury. The damages include the skin, muscles and tendons, nerves, blood vessels.

The treatment of the average fracture can be divided into three phases: reduction-to restore normal bony alignment, immobilization –to maintain the reduced position until union has occurred, and finally, rehabilitation-to restore normal function to the injured part.

Bony complications are corrected in different ways. Where there is a degree of mal-union sufficient to cause early or late disability it must be treated by osteotomy. Where non-union is established or appears to be inevitably developing, bone grafting should be employed. This may be either cortical or cancellous.

Fractures of the spine may be due to direct blows on the back leading to fractures of transverse, or more rarely of spinous processes. Secondly they may be due to vertical compression forces, which with an anterior-posterior shearing strain lead to dislocation of one vertebra on another. The last type of injury follows a forced flexion injury by which the neurological contents of the spinal canal are almost inevitably damaged.

In the management of all chest injuries the maintenance of normal oxygen and carbon dioxide levels in the blood stream must be the dominant feature. **Chest injuries** may result from a direct blow, a crushing force, a penetrating wound or blast from explosion. There are rib fractures, fractures of the sternum, injuries of the pleura and lungs, injuries of the heart and great vessels. Diaphragmatic injuries may be associated with both thoracic and intra-abdominal damage.

Abdominal injuries may be caused by blunt trauma or penetrating wounds. The two major effects of either type of abdominal injury are hemorrhage producing shock and rupture of a hollow viscous producing peritonitis or a combination of both, either which may be lethal if left untreated. Injuries of the urinary system are due to either blunt trauma or to a penetrating wound. The kidney may be contused, the bladder ruptured, the ureter often escapes trauma.

3. Give detailed answers

1. When would you suspect the presence of a fracture? 2. What types of fracture do you recognize? 3. How is a comminuted fracture defined? 4. What are the characteristic features of a “greenstick” fracture and in what category of patients is it most often met? 5. What are the complications of fractures? 6. What is the usual phasing of fracture treatment? 7. When do you resort to osteotomy if complications in fracture healing arise? 8. What is the difference between a dislocation and a sprain? 9. Under what circumstances will a surgeon decide in favour of bone grafting? 10. How do fractures of the spine usually arise? 11. When do surgeons speak of forced flexion injuries? 12. What must be particularly borne in mind in all chest injuries? 13. What are the specific dangers of abdominal injuries? 14. What is the difference between contusion and rupture?

III. Word study

4. Make up English- Russian pairs of words

Bruising, preservation, tend, scald, lining, dressing, swelling, combat, ligament, splintage, facility, dislocation, sprain, blow, contamination, disability, disruption, subluxation

Обварение, удар, шинирование, выстилка, недееспособность, борьба, ложе, способствовать, связка, опухоль, повязка, оборудование, вывих, растяжение, разрыв, сохранение, посинение, подвывих, заражение.

5. Make up pairs of synonyms

Injury, disruption, damage, management, disability, bruise, suture, flap, senile, dislocation, swelling, bleeding,tenderness, accident, immobilization, contamination, rehabilitation, feature

Ecchymosis, graft, character, catastrophe, pain, rupture, treatment, stitch, harm, oedema, inability, hemorrhage, old, trauma, restoration, displacement, fixation, infection

6. Insert a necessary preposition

1. Damage towards one side of the spinal cord results in impairment or loss of movement ... the injured side. 2. The person may experience difficulty ... coordinating movements of his limbs. 3. Traumas occur more frequently ... the elderly. 4. Bone grafting is usually used ... non-union bones. 5. One of the best ways ... a person with a spine cord injury to cool down is to have a cold towel wrapped around the back of the neck. 6. Typical common causes ... damage to the spinal cord are traumas or disease. 7. Coughing is induced ... rapid contraction of the abdominal muscles to expel air from the lungs. 8. Muscle spasm can occur ... a person with a spinal cord injury any time the body is stimulated below the level of injury.

7. Fill in the blanks with the proper words from the list below

1. A bone____ can be diagnosed clinically based on the history given and the physical examination performed by a health care professional. 2. A partial or complete dislocation is called a_____. 3. Immediately after the_____, the joint is almost always swells significantly and feels painful when pressure is applied. 4. A ____ is an injury to ligaments that is caused by being stretched beyond their normal capacity and possibly torn. 5. Partial _____ of ligament is usually much more painful than full tears, which sometimes can be painless.

Tear, fracture, subluxation, sprain, dislocation.

IV. Learn to speak professional medical English

8. Make up definitions

Simple fracture is....

Compound fracture is....

Comminuted fracture is....

Greenstick fracture is....
Incomplete fracture is....

V. Learn to translate medical articles

9. Translate the following abstract into Russian

Spinal cord trauma

The spinal cord carries nerve signals from the brain to the rest of the body. Trauma to the spinal cord can result from a number of injuries, most commonly from motor-vehicle accidents, falls and violence. More than 80% of cases of spinal-cord trauma occur in people between the ages of 15 and 35, and approximately 80% of those affected are male. Most spinal cord injuries occur in the area of the neck called the cervical region. Trauma can result from bruising to the spinal cord itself, loss of blood flow to the cord or cuts of the cord. Cuts or a complete severing of the spinal cord are quite rare. Spinal cord injuries are serious and can cause diminished strength, coordination and sensation as well as other functions, such as bladder control.

Lesson 16. Neoplasms

I. Learn to pronounce, write and read English words and medical terms.

1. Write the following words in transcription

Malignant, epithelioma, lymphoblastoma, nephroma, metastasis, wart, forewarning, neoplasm, discharge, chemotherapeutic, nephroblastoma

2. Read the following words and medical terms

Compliment, gradually, berserk, indistinctness, carcinogenic, mole, lump, insidious, herald, irradiation, chemotherapy

II. Text study

3. Read the text, translate it consulting dictionary

Cancer

Cancer begins in a group of cells, or perhaps even a single cell that has gone berserk, multiplying regardless of need. Thus a cancer cell found in a neoplasm possesses characteristics which differentiate it from normal tissue cells. Prominent among the distinctive features are the degree of anaplasia, irregularity in shape, indistinctness of cell outline, nuclear size, changes in the structure of the nucleus and cytoplasm, increased number of mitoses and, most important from the clinical point of view, the ability to metastasize.

Although some cancer cells keep the special function of the cell-type, most tend to lose it, regressing towards an embryonic type with less differentiation. The rare cancers of infancy (nephroblastoma or Wilms' tumour, neuroblastoma, etc.) are thought to arise from cells that have failed to outgrow the embryonic state, but this is no longer believed to explain cancer in adults.

In effect, a cancer is a parasite formed from the patient's own tissues; it is not subject to the normal control of nerves and hormones, drawing on the general supply of nutrients and contributing nothing in return. Because they have nothing to do but reproduce themselves, cancer cells in time outnumber the healthy cells in their neighbourhood, spreading beyond the limits of their original organ through lymph vessels or veins to other parts of the body where they form metastases.

Although, generally speaking, the aetiology of cancer is unknown, a number of factors have been suspected of being conductive to malignant neoplasms. Some part is played by inherited constitution; people with a family history of cancer are rather more liable to the disease than others. But while hereditary factors may predispose to cancer they seldom if ever are the sole cause. Much the same seems

to be true of chronic irritation; evidence of it being the chief aetiological factor remains poor. On the other hand, some special types of injury may presumably alter the genetic make-up of a cell, giving rise to mutation, so that not only the reproductive behavior of the cell is disturbed but also that of its progeny.

The known physical and chemical agents of cancer include ionizing radiation, such as X-rays, radioactive substances, even tropical sunlight, and many chemical poisons. Of the so called carcinogenic substances, many products of the distillation of coal and oil (tar, soot), arsenic and some intermediate products in the synthesis of dyes are able to cause cancer following repeated or prolonged exposure.

Of late, by far the most discussed sole cause of cancer has been virus infection. The idea is that a virus which is little more than a tiny bit of genetic material itself might become incorporated with the cell's own material and cause the kind of mutation that would lead to cancer. No virus infection has been positively identified in human cancer, but there is evidence that Burkitt's sarcoma, known in Africa, may be due to a virus transmitted by mosquitoes.

Cancer is an insidious disease with few if any clinical manifestations in the early stages. There are however important warning signals. The patient may complain of unusual bleeding or discharge from an internal or external body site, indigestion or difficulty in swallowing, unexplained loss of weight; he may notice a change in size or shape or appearance of a wart or mole or a sore that does not heal. There may be a lump or thickening in any area but especially in the breast, heralding cancer of the breast, or hoarseness or persistent cough, forewarnings of lung cancer. Any change in bowel or bladder habits may be early symptoms of some form of abdominal cancer.

4. Give detailed answers

1. What makes cancer cells lose the special function of their cell-type? 2. How are cancers of infancy explained? 3. Why is cancer taken as parasite? 4. Why do cancer cells gradually outnumber the healthy cells in their neighbourhood? 5. How do cancer cells spread from the original focus? 6. Which are the factors conductive to malignant neoplasm? 7. What happens if the whole genetic make-up of a cell is altered? 8. What is the relationship between ionizing radiation and cancer? 9. Why aretar, soot, arsenic and some other products considered to be carcinogenic? 10. What is the possible relationship between cancer and virus infection? 11. Why is cancer referred to as insidious disease? 12. What are the clinical manifestations if any? 13. What is change in bowel habits indicative of?

III. Word study

5. Make up English- Russian pairs of words

Indistinctness, draw, complement, sole, liable, outgrow, suspect, predispose, inaccurately, reproduce, prominent, inherit, seldom, progeny, adjunct, conquer, presumably, exposure, insidious, retard, affection, suppress, herald

Неточно, поражение, комплект, воспроизводить, выдающийся, нечёткость, перерастать, получать, подозревать, наследовать, подверженный, предрасполагать, редко, единственный, предположительно, потомство, воздействие, коварный, предвещать, вспомогательное средство, замедлять, подавлять, побеждать

6. Form adjectives, using appropriate suffix from the list given below

Cancer, neoplasm, embryo, carcinoma, epithelium, membrane, leukemia, anaplasia, cytoplasm, nucleus, metastases, aetiology, malignancy, hereditary, carcinogen, chemotherapy

-ic(-nic/-tic), -ous(-tous), -ary, -al, -ant

7. Make up chains of words corresponding to Russian

Statistics

Статистика - статистический- с точки зрения статистики.

Industry

Производство – производственный –индустриализованный.

Cytology

Цитология – цитологический – с точки зрения цитологии.

Predispose

Предрасполагать – предрасположение – предрасполагающий.

Susceptible

Восприимчивый – восприимчивость.

Conduct

Проводить – проводимость – проводящий.

Genetics

Генетика – генетический - с точки зрения генетики

Inherit

Наследовать – наследственность – наследственный.

Continue

Продолжать – продолжительный – продолжение.

Produce

Производить – продукт – производство – продуктивный.

8. Complete definitions by translating parts in the brackets

1. Carcinomais… (вид злокачественной опухоли, развивающейся из клеток эпителиальной ткани различных органов).
2. Adenomais… (доброкачественная опухоль железистого эпителия).
3. Adenocarcinomais…(злокачественная (эпителиальная) опухоль, состоящая из железистых эпителиальных клеток, входящих в состав большинства внутренних органов человека)
4. Epitheliomais… (доброкачественная излокачественнаяопухоль поверхностного эпителия, преимущественно кожи и её придатков).
5. Lymphoblastomais… (злокачественная опухоль из незрелых лимфоидных клеток).
6. Neuroblastomais… (злокачественная опухоль симпатической нервной системы).
7. Myelomais… (онкологическое заболевание, при котором происходит бесконтрольное накопление «миеломных» клеток в костном мозге, ведущее к разрушению костной ткани).
8. Myxomais… (доброкачественная опухоль из соединительной ткани с большим содержанием слизи).
9. Leukemiais… (группа опухолей, которая характеризуется бесконтрольной пролиферацией и разной степенью дифференцировки кроветворных клеток).

IV. Learn to speak professional medical English

9. Read the text and speak about techniques to fight malignant diseases

War Against cancer

From drugs to light beams, doctors are designing a lot of techniquesto fight malignant diseases.

Survival rates for many cancer patients are gradually improving due to the fact that in the laboratory researchers are looking for new ways to diagnose and treat the country's most feared disease.

Bombardment using high-energy particles from an accelerator is proving effective for patients with eye tumors.

Accelerating the particles doctors can increase the dose to the cancer cells and spare surrounding tissue.

Aggressive therapy is also improving the outlook for patients with the most acute form of lymphoma.

The combination of light beams and drugs is showing success in the treatment of patients with lung or bladder cancer.

Medical scientists are developing fresh techniques to increase the effectiveness of anticancer agents while reducing side effects.
The doctors are using agents not to kill cancer cells but to convert them into benign form. Methods of detecting pretumor states and early forms of malignant neoplasms are being further investigated.

V. Learn to translate medical articles
10. Read the following text and write a short abstract in Russian

Stomach Cancer
Stomach cancer (also known as gastric cancer) is relatively uncommon in the United States and other western countries. Worldwide, however, it is the second leading cause of cancer death. Stomach cancer can be cured if the tumor is found early and completely removed surgically. However, the disease is often not diagnosed until it has already spread (metastasized) to other tissues and organs. Outcomes are very poor for patients with advanced stomach cancer that cannot be surgically removed.
A drug known as S-1 is used as a first-line treatment for stomach cancer in Japan. As yet, S-1 is not approved for use in the UnitedStates. Instead, U.S. doctors treat advanced stomach cancer with a drug called fluorouracil (5-FU). S-1 contains tegafur, a substance that in the body converts to 5-FU.
A potential advantage of S-1 over the drug 5-FU is that S-1 can be taken by mouth, whereas 5-FU must be given intravenously. A phase I/II study showed promising results when Japanese patients with advanced stomach cancer were treated with a combination of S-1 and a second drug called cisplatin, a commonly used cancer chemotherapy.

Lesson 17. Dermatology

I. Learn to pronounce, write and read English words and medical terms.

1. Write the following words in transcription

Recommendations, classification, ulceration, standardization, proliferation, evaluation, recognition, decision, information, addition, combination, stabilization, generation, dysregulation, stimulation, alteration, intersection, organization, investigation

2. Read the words

Malignant, melanoma, subsequent, management, dermatologist, guideline, recommendations, classification, precisely, unfortunately, personalized, mitotic, ulceration, biopsy, augment, techniques, previously, reproducibility, validity, challenge, antigen, pathogenic, mechanisms, standardization, criteria, approach, utility, epidemiology, multidisciplinary, to optimize, heterogeneous, dermatology, immunology, oncology, to require, plaque, proliferation, controversial, separate, patch

3. Learn to pronounce the following words and memorize their Russian equivalents

Epidemiology, dermatology, immunology, oncology, dermatologist, oncologist, immunologist, epidemiologist, biology, biologist, pathologists

II. Text study

4. Read the text, translate it consulting dictionary

Impact of a 31-gene Expression Profiling Test for Cutaneous Melanoma on Dermatologists' Clinical Management Decisions

Background

Following a diagnosis of cutaneous malignant melanoma (CMM), patients are often guided for subsequent management by their dermatologist and national guideline recommendations. Based upon staging classification for CMM, guidelines recommend diagnostic tests and additional evaluation which may provide defined treatment protocols, surveillance, and follow-up. Unfortunately, these recommendations are often similar across several tumor stages in part because of the inability to precisely stratify different risk groups that may have markedly different outcomes. The push for personalized medicine has led to considerable advances in the guidelines and staging of CMM, including the

recognition of the prognostic value of unique patient characteristics such as mitotic rate, ulceration presence, and sentinel lymph node biopsy (SLNBx) status.[3]

Technology has already been demonstrated to augment dermatologists' clinical decision making for this tumor. Molecular-based techniques have been shown to provide additional information for CMM as has been noted in many other tumors. A 31-gene expression profile (GEP) test (DecisionDx-Melanoma, Castle Biosciences Inc., Friendswood, TX) was developed to predict whether a patient is at low-risk (Class 1) or high-risk (Class 2) for metastasis based on their primary CMM tumor biology.[5,6] The prognostic accuracy of the 31-GEP was previously reported in several prospectively planned multicenter studies and contributes significant additional information when considered in combination with current AJCC staging criteria and guideline recommendations.[5-8]Althoughthe 31-GEP has demonstrated reproducibility and clinical validity in assessing recurrence risk, another important aspect of molecular testing is clinical utility – the impact of the test results on clinical decision making.

Mycosis Fungoides and Sézary Syndrome, the two most common types of Cutaneous T-Cell Lymphoma (CTCL), present many management challenges for dermatologists. Here, we provide a comprehensive review of up-to-date literature, guidelines, and expert clinical insights. We highlight the updates in the World Health Organization Classification of Cutaneous Lymphomas; we summarize the epidemiology, including a recently observed stabilization of increasing incidence of CTCL in the past decade and increased incidence in males, blacks, and veterans; we also provide the most recent updates on prognostic factors for CTCL. Utilization of Next-Generation Sequencing and other novel technologieshas shed light on pathogenic mechanisms of CTCL, including immune dysregulation, antigen stimulation, and genomic alterations. CTCL management still remains a significant challenge due to lack of standardization of therapies for every stage of the disease. We provide a straightforward approach to clinical evaluation, diagnostic workup via immunophenotyping and molecular studies, staging guidelines, and select treatment strategies in Mycosis Fungoides and Sézary Syndrome. CTCL patients require individualized, holistic, and multidisciplinary care, for whom addressing management in different skin types and prioritizing quality of life issues are essential.

Cutaneous T-Cell Lymphoma (CTCL) is a heterogeneous group of Non-Hodgkin's lymphomas arising from mature T-cells. CTCL is a rare but important entity for all dermatologists to become familiar with in order to facilitate diagnosis and management. This review will focus on the two most common types of CTCL, Mycosis Fungoides (MF), and Sézary Syndrome(SS),

summarizing the latest evidence-based guidelines, including classification, epidemiology, clinical presentation, diagnosis, pathophysiology, and treatment strategies. We will highlight management of CTCL in patients with Fitzpatrick skin types IV-VI and issues affecting quality of life. CTCL represents a unique intersection of dermatology, immunology, and oncology, and requires multidisciplinary management.

Classification The term Mycosis Fungoides was first coined in 1806 todescribe a patient with cutaneous patches that progressed into plaques and tumors. Sézary Syndrome was first documented in 1933 as a syndrome of pruritus, generalized erythroderma, and abnormal hyperconvoluted lymphoid cells in the blood. The distinction between primary cutaneous and primary systemic lymphomas was first made in 1975; prior to that time cutaneous lymphomas were managed in the same manner as their nodal counterparts.

In 2005, the World Health Organization (WHO) and the European Organization for Research and Treatment of Cancer (EORTC) published a collaborative *WHO-EORTC Classification of Cutaneous Lymphomas,* for the first timeattempting to unify these entities to optimize diagnosis, therapy and clinical investigation in these diseases. The WHO integrated these entities in its 2008 *WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues, Fourth Edition.* These definitions are accepted world-wide by dermatologists, oncologists, pathologists, and dermatopathologists. The latest WHO classification was recently revised and the official monograph is currently pending. Notable updates include adding "Primary Cutaneous acral CD8+ T-cell lymphoma" as a provisional entity and changing "Primary cutaneous CD4+ small/medium T-cell lymphoma" to "primary cutaneous CD4+ small/medium T-celllymphoma" as a provisional entity and changing "Primary cutaneous CD4+ small/medium T-cell lymphoma" to "primary cutaneous CD4+ small/medium T-cell lymph proliferative disorder" to reflect its indolent behavior andfavorable prognosis.[6] About 50% of cutaneous lymphoma cases classified by the WHO-EORTC are Mycosis Fungoides (MF) (44%) and its variants, Folliculotropic MF (4%), PagetoidReticulosis (<1%), and Granulomatous Slack Skin (<1%). MF is defined as an epidermotropic proliferation of small to medium sized T lymphocytes with cerebriform nuclei, characterized by the evolution of patches, plaques, and tumors.4 3% of CTCL cases are Sézary Syndrome, classically defined by the triad of erythroderma, generalized lymphadenopathy, and the presence of neoplastic Sézary cells circulating in the peripheral blood. Whether MF and SS are distinct diseases or exist on a spectrum is controversial, but SS is officially classified as a separate disease.

5. Give detailed answers

1. What do guidelines recommend? 2. Why are these recommendations often similar across several tumor stages? 3. What has the push for personalized medicine led to? 4. Whattechniques have been shown to provide additional information for CMM as has been noted in many other tumors? 5. What does CTCL represent? 6. Why does CTCL management still remaina significant challenge? 7. What care do CTCL patients require? 8. When was the distinction between primary cutaneous and primary systemic lymphomas first made? 9. Howwere cutaneous lymphomasmanagedprior to that time? 10. How is SS officially classified?

III. Word study

6. Make up English- Russian pairs

Classification, ulceration, standardization, proliferation,evaluation,to unify, a laboratory test, clinical investigation,nuclei,additional information,require, definition,heterogeneous, cutaneous, medium, clinical presentation,generalized,plaque, medium sized, cells circulating in the peripheral blood, aseparate disease, follow-up

Клетки циркулирующей крови, клинические исследования, изъязвление, общий, определение, лабораторный анализ, классификация, пролиферация, оценка, дополнительная информация, ядра, унифицировать, однородный, кожный, клиническая картина, среднего размера, требовать, средний, самостоятельное заболевание, бляшка, стандартизация, наблюдение

7. Make up adjectives using suffixes: -ous, - ary, -al, -ive, -able, -ent

Collaborate, clinic, addition, note, provision, prime, node, presence, favor, recurrence,importance,nation, continue,

8. Fill in the blanks with the proper words from the list below

1. _____a diagnosis of cutaneous malignant melanoma, patients are often guided for subsequent management by their dermatologist and national guideline recommendations. 2. Cutaneous T-Cell Lymphoma is _____ group of Non-Hodgkin's lymphomas arising from mature T-cells. 3._____ has already been demonstrated to augment dermatologists' clinical decision making for this tumor. 4. The distinction between primary ____ and primary systemic lymphomas was first made in 1975. 5. Molecular-based _____have been shown to provide additional information for CMM as has been noted in many other tumors. 6.About 50% of _____ cases classified by the WHO-EORTC are Mycosis Fungoides (MF) (44%) and its variants. 7. We provide a straightforward

_____to _____, diagnostic workup _____immunophenotyping and molecular studies, staging guidelines, and select _____ in Mycosis Fungoides and Sézary Syndrome.

Treatment strategies, via, technology, following, techniques, cutaneous lymphoma, approach, clinical evaluation, cutaneous, heterogeneous

IV. Learn to translate medical articles

9. Read the following text

Scientists develop test to identify best treatment for gonorrhea

Researchers from UCLA have developed a laboratory test that helps physicians determine which people with gonorrhea may be more treatable with an antibiotic that has not been recommended since 2007 because of concerns that the resistance to the drug was growing.

Gonorrhea has developed increasing resistance to all current antibiotics.

Due to the spread of multi–drug resistant gonorrhea, health authorities have declared it one of the top–three urgent threats to public health.About 80 percent of gonorrhea infections in the United States, however, could be treated with ciprofloxacin. Scientists have been trying to determine how to better identify cases for targeted use of ciprofloxacin therapy, reducing the need to use the antibiotic ceftriaxone and risking increased resistance to that drug. Gonorrhea's resistance rate to ceftriaxone is currently less than1 percent.

The research was conducted at UCLA Health's hospitals, emergency departments and primary care clinics. After developing a test to detect a genetic change in gonorrhea that makes it resistant to ciprofloxacin, the researchers noted what treatments UCLA physicians had been using to treat gonorrhea. They then used the new test for all gonorrhea cases over a nine–month period and compared treatments before and after test introduction.

Based on the results from the new DNA test, physicians appropriately changed treatment choices decreasing the use of ceftriaxone from 100 percent of the time to 66 percent. Correspondingly,the use of ciprofloxacin increased from 0 percent to 34 percent of cases.

These findings are important because there are a limited number of medications to treat gonorrhea. Reusing previously effective antibiotics and decreasing the use of ceftriaxone may slow down the continued emergence of antibiotic resistance. The authors of the study are Lao–Tzu Allan–Blitz, Romney Humphries, PeeraHemarajata, AshimaBhatti, and Jeffrey Klausner of UCLA; Mark Pandori of the Alameda CountyDepartment of Public Health; and Mark Siedner of Harvard University.

Lesson 18. Ecology

I. Learn to pronounce, write and read English words and medical terms.

1. Write the following words in transcription

Decade, chemicals, range, interfere, vital, accumulate, induce, rare, industry, discharge, result

2. Define part of speech and translate the following words

Society – social –socialism –socialist; price –priceless; simple –simplify; expect – expected –unexpected; incidence – incident - incidental – incidentally; accident – accidental – accidentally; expose -exposed – exposition – exposure; safe – safety – safely – save; collaborate – collaborator – collaborative – collaboration; generate – generation – generator.

3. Learn to pronounce the following word combinations and memorize their Russian equivalents

Human activities, to bring great benefit to, in terms of, quality of environment, to take adequate control, living processes, in unexpected ways, to take action, to induce adverse effects, to confirm the findings, it become clear, collaborative efforts

II. Text study

4. Read the text, translate it consulting dictionary

Chemicals, Human Heals and the Environment

In the last few decades there have been enormous developments in the use of chemicals in a wide range of human activities. While there can be no doubt that chemicals have brought great benefits to society it is now apparent that there is a price to pay in terms of human health and the quality of environment, which could escalate unless vigorous action is taken to control their use.

Provided adequate controls had been taken in the past, relatively simple chemicals could not have interfered with vital living processes in unexpected ways. It is not only the vast quantity of chemicals produced that is remarkable, but their great variety, and in fact that there are few aspects of daily life in which synthetic chemicals do not play some role.

Unless a series of tragic incidents had occurred much consideration for possible health effects would not have been taken. In 1959, an unusual disease was reported in Japan. This was found to be associated with the industrial discharge of

mercury compounds into neighbouring waterways. If the mercury were not accumulated by the local fish it wouldn't reach toxic concentrations; over a thousand people wouldn't become ill.
The accident highlighted the fact that toxic effects can follow from relatively low exposure repeated over a long period. However short were the period of exposure, it did induce significant adverse effects.
The production of polyethylene was believed to be safe. It was found to cause a rare cancer of the liver in workers exposed to its high concentrations. On condition that the results of animal studies confirmed this finding, the question of the safety of many other chemicals used in plastic industry would be raised.
It became clear that unless collaborative efforts were made, toxic effects, not only on present but on future generations could result from exposure of chemicals in air, food, and at the place of work.

5. Answer the following questions

1. In what ranges of human activities are chemical used? 2. Do chemicals influence human health and the quality of environment? 3. Has adequate controls been taken in the use of any chemicals? 4. Do synthetic chemicals play any rolein daily life of people? 5. Did any tragic incidents occur in the world? 6. What has happened in Japan? 7. Can toxic effects follow from low exposures to chemicals? 8. What is necessary to do to savepresent and future generations from the harmful effects of chemicals? 9. What is being done to preserve the environment?

III. Word study

6. Find synonyms to the following words in the text

Great, extraordinary, to collect, to cause, important, opposite

7. Find antonyms to the following words in the text

Small, illness, to disperse, dangerous, common, to contradict

8. Translate the following sentences into Russia

1. Water pollution is the contamination of surface or ground water supplies by sewage, industrial wastes or garbage and other refuse. 2. Water pollution has become a health hazard but also a great economic problem. 3. Atmospheric pollution is the result of air contamination by liquid or solid particles, gases, and vapours. 4. Air pollution is a major cause of ill health or disease in human beings. 5. The air in urban areas with high traffic density is also polluted by exhausted fumes from motor vehicles as a result of imperfect internal combustion. 6. The latest environmental hazard is that caused by the harmful effects of atomic

radiation such as X –rays, gamma rays and radioactive fall-out resulting from exploding nuclear devices in the air or from untreated nuclear reactor wastes. 7. The dose that will cause half of the population to die is called median lethal dose.

IV. Learn to speak professional medical English

9. Make up English- Russian pairs

Scale, curse, supply, threat, density, treatment, residence, settlement, capacity, contamination, hazard, exposure, effluent, wastes, surroundings, fall-out, sewage, garbage, flue, alarm, abatement

Воздействие, окружающая среда, загрязнение, воздухоотвод, способность, снабжение, осадки, угроза, проклятие, промышленные отходы, опасность, плотность, мусор, отходы, обработка, осаждение, тревога, масштаб, пребывание, удаление, сточные воды

V. Learn to translate medical articles

10. Read the following text

Environmental pollution is contamination of the air, water and land from man-made waste. Pollution leads to depletion of the ozone layer, global warming and climate change. Air pollution is the release of chemicals and particles into the atmosphere. Water pollution includes surface runoff, leakage into groundwater, liquid spills, wastewater discharge and littering. If toxins are spilled on the ground or if an underground storage tank leaks, soil can become contaminated. Well known contaminants include herbicides and pesticides. Toxic waste is waste material, often in chemical form, which pollutes the natural environment and contaminates groundwater.

Other types of pollution include ocean pollution and noise pollution. Environmental pollution can have a deadly effect on humans and ecosystems. For example, cigarette smoke, including second hand smoke, causes cancer, emphysema, stroke and heart attack. Drinking water can be contaminated by untreated sewage, rashes and skin problems occur due to oil spills, while excessive noise can cause hearing loss. The US Environmental Protection Agency was established in 1970 to put a limit on the amount of pollutants in the air. Congress passed the Clean Air Act in 1963, the Noise Control Act in 1972, and the Clean Water Act in 1977. Pollution is a bigger concern in other parts of the world, especially developing countries. Time Magazine reported in 2007 that the most polluted spots in the world included China, India, Peru and Russia.

Lesson 19. Physical fitness and health

I. Learn to pronounce, write and read English words and medical terms.

1. Read the words and give their Russian equivalents

Relationship, suggest, although, participation, perceived, competitive, enhance, mile, resistive, femoral, variety, longitudinal, density, sample, associated, explore, domain, reduction, weight, literature, determine, significant, impact, beneficial, whole, maturity, osteoarthritis, knee,adolescent

II. Text study

2. Read the text, translate it consulting dictionary

A series of research findings illustrates the positive relationship between physical activity and bone mineral density (BMD) in a variety of subpopulations. In longitudinal studies using various sample sizes, Kemper et al and Puntilla et al illustrate that regular (weight- bearing) physical activityis significantly related to BMD at the lumbar spine and femoral neck. In relation to total body and lumbar spine BMD, van Langendonck et al illustrate that the type of sports participation is a significant factor, with the impact sports (ground forces higher than four times body weight) most effective and remaining beneficial for skeletal health of male aged 40. Ryan et al report on the effects of six months whole body resistive training in both young and older men and women. They report that the programme increased muscle mass and improved BMD in the femoral region for all and suggest that if BMD is increased at skeletal maturity, reductions might be achieved in fracture risk in later years. Supporting this conclusion Neville et al demonstrate the importance of sports involving high peak strain for determining peak bone status, especially in young women (who are less likely to take part in such sports). Greendate et al, in a study of 42 to 52 year-old women explore four domains of physical activity (sport, home, work, active living). They illustrate that both sport and weight- bearing work in home were the best and equal predictors of greater BMD at lumbar spine and femoral neck sites. The work of Cheng et al raises the one negative note in this literature, finding that high levels of physical activity (running twenty or more miles per week) were associated with osteoarthritis (knee and hip joints) among men less than 50 years of age (although no relationship was suggested among women or older men).

A number of papers address the more general issue of the relationship between sports participation and health behaviors in young people. Miller et al use data from a large- scale survey of school pupils to illustrate that athletic participation has both positive and negative implications for adolescent health and recommend

ways to use sport for health promotion. Pastor et al use survey data of fifteen – to eighteen year- olds to conclude that the higher the levels of sports participation, the higher the perceived health, with lower levels of smoking and alcohol use also enhancing health perceptions. However, the relationships are only weak to moderate. Pyle et al's survey data on high school students illustrate that for males and females competitive sports participation was associated with a lower frequency of mental ill-health, eating and dietary problems, and total risks (although there was a higherfrequency of sports related injuries).

3. Give detailed answers

1. How can people be encouraged to participate in sports? 2. Is it difficult to dissuade people from over-exercising or exercising when they are injured? 3. What strategies can you use? 4. Can you order or persuade the patients?

III. Word study

4. Find adjectives and nouns with similar meaning that are used to describe nouns in the text

1 related to carrying heavy objects
2 covered many people
3 carried out over a period of time
4related to contests
5 related to exploring and studying
6 worth nothing
7 related to questions about physical activity

5. In the text a number of researchers and the focus of their research are mentioned. Match each description to a researcher

1 looked only at women
2 explored information on older teenagers only
3 mentioned findings relating to men and running
4 made suggestions to improve health
5 researched both genders over a wide age range

IV. Learn to translate medical articles

13. Read the following text

Rehabilitation

Rehabilitation is a process of care aimed at restoring or maximizing physical, mental and social functioning. It can be used for acute reversible insults, acute nonreversible or partially reversible insults, e.g. amputation, MI, and chronic or progressive conditions e.g. Parkinson's disease. It involves both restorations of function and adaptation to reduced function depending on how much reversibility there is in the pathology. Rehabilitation is an active process done by the patient not to him/her. It is hard work for the patient, it is not convalescence.

Rehabilitation is the secret weapon of the geriatrician, poorly understood, and little respected by other clinicians. Many geriatricians feel it is what defines their specialty and it can certainly be one of the most rewarding parts of the job. The "black box" of rehabilitation contains a selection of non-evidence based, common sense interventions comprising:

• ***positive attitude***Good rehabilitationalists are optimists. This is partly because they believe all should be given a chance and partly because they have seen very frail and disabled old people do well. A positive attitude from the main team and other rehabilitation patients also improves the patients' expectations. Rehabilitation wards should harbor an enabling culture where the whole team encourages independence: patients dressed in their own clothes, with no catheter bags on show, and eating meals at a table with other patients.

•***multidisciplinary coordinated team working*** By sharing goals the team can ensure they are consistent in their approach.

•***functionally- based treatment,*** e.g. the hemoglobin level only matters if it is making the patient breathless while walking to the toilet.

•***individualized holistic outcome goals*** These incorporate social aspects which are often neglected. The team concentrates on handicap rather than impairment.

Specialized rehabilitation wards are not the only place for rehab. If the above considerations are in place then successful rehabilitation can take place in: acute wards, specialist wards (e.g. stroke units, orthopedic wards), community hospitals, day hospitals, nursing and residential homes, and the patients' own homes. The alternative sites often employ a roving rehabilitation team which may be used in hospital or the community.

Lesson 20. Pediatrics

I. Learn to pronounce, write and read English words and medical terms.

1. Read the following words and medical terms

Care, premature, palate, fibrocystic, hypertrophy, glycogen, diarrhea, rheumatic, tracheostomy, salivary, spina bifida, whooping cough, herpes zoster, palsy, incompatibility, neonate, hereditary, hare-lip, fissure, gluten, coeliac, jejunal, pneumonia, otitis, deafness, shingles, pseudo membrane, routine.

II. Text study

2. Read the text, translate it consulting dictionary

Children's diseases

Pediatrics covers a wide range of medical problems from genetic disorders down to infectious diseases predominantly associated with childhood.

Birth injuries sustained in some cases of complicated labour may affect the head (intracranial injuries) or the peripheral nerves. Erb's palsy, affecting the shoulder and arm muscles, results from a lesion of the 5^{th} and 6^{th} cervical nerve roots.

Rh- incompatibility affects about one baby in two hundred. Congenital (not necessary hereditary) malformations include hare-lip, cleft palate (often combined), club foot, hyperspadias, congenital heart disease, congenital hydrocephalus, spina bifida, imperforate anus, atresia of the bowel etc. A number of them can be removed surgically.

Genetic disorders are largely due to defective or mutant genes. The most common of these are caused by recessive gene mutation, e.g. fibrocystic disease of the pancreas or mucoviscidosis affecting about one child per 2500 live births, sickle-cell anaemia, haemophilia, etc. Some of them are relatively easy to cure. Pyloric stenosis is a congenital hypertrophy of the pyloric sphincter muscle. It is routinely treated by means of Ramstad's operation to relieve constriction and fatal vomiting. Phenylketonuria, an inborn error of metabolism often resulting in mental deficiency, can be relieved by keeping the child on a diet with as little phenylalanine as possible. Impaired metabolism with failure to thrive may be caused by other recessive gene conditions – galactosaemia, cystine storage disease, glycogen storage disease etc. Faulty allocation of whole chromosomes is usually lethal to the embryo, but the most frequent case of survival is mongolism or Down's syndrome due to an autosomal anomaly. Intolerance to gluten (in oats and wheat) as well as failure to assimilate fats are supposed to be the causes of coeliac disease, in early childhood. The wasting disorder is marked by flat jejunal mucosa,

distended abdomen, anaemia induced by iron deficiency, bulky stools with an excess of fat and general emaciation. Complete recovery is the rule but it requires a gluten-free diet and may take several years. A number of infectious diseases are so frequent among children that they are of major concern to pediatricians.

Infants tend to be often affected by gastroenteritis caused by specific sero-types of microbes. The condition is particularly dangerous in small babies as they have limited reserves of water and get quickly dehydrated by severe dairrhoea and vomiting. Treatment is more or less limited to a sloppy and bland diet. The most frequent notifiable fevers, often described as children's ailments are: measles, scarlet fever, German measles, chickenpox, pertussis or whooping cough, rickets and scurvy.

Measles is caused by virus and characterized by fever, blotchy rash, severe catarrh of mucous membrane and increased susceptibility to secondary bacterial infection (pneumonia, otitis media etc.). **Scarlet fever** is an acute contagious disease characterized by sore throat, strawberry tongue, fever and scarlet rash. Antibiotics are generally used to combat it and prevent subsequent complications such as rheumatic fever and acute glomerulonephritis. **German measles** is milder than true measles but dangerous when contracted during the first three months of pregnancy as it may produce fetal malformation (congenital deafness or defective vision). **Chickenpox** is a specific infection caused by a filter-passing virus, characterized by vesicular eruption which scales and heals well flaking off without scarring. **Whooping cough** is basically an infectious respiratory catarrh caused by Haemophilus pertussis; mumps or infectious parotitis is an acute inflammation and swelling of the parotide salivary glands.

Nowadays many countries combat most of these diseases by vaccination which confers life-long immunity.

3. Give detailed answers

1. What are the usual results of birth injuries? 2. What is the difference between congenital and hereditary malformations? 3. Which are the most common congenital anomalies? 4. What is the cause of genetic disorders? 5. How would you treat a baby suffering from Phenylketonuria? 6. W hat is the cause of Down's syndrome? 7. Which are the commonest infections fevers contracted in childhood? 8. Why is gastroenteritisparticularly dangerous in small babies? 9. What are the complications of measles? 10. In what way is rubella dangerous to fetal development? 11. Is infectious paratitis limited to the tender age?

III. Word study

4. Make up English- Russian pairs

Insufficiency, feature, lesion, cure, constriction, emaciation, care, allocation, sucking, illness, disorder, survival, intolerance, concern, susceptibility, root, loss, range, eruption

Повреждение, высыпание, уход, недостаточность, расположение, сосание, проблема, восприимчивость, болезнь, корешок, нарушение, непереносимость, черта, истощение, потеря, предел, сужение, выживаемость, лечение

5. Make up pairs of synonyms

Labour, problem, treatment, constriction, disorder, range, danger, newborn, reaction, insufficiency, injury, anomaly, malformation, emaciation, disease

Illness, delivery, abnormality, area, exhaustion, lesion, disturbance, question, defect, neonate, deficiency, risk, narrowing, cure, response, failure, parturition, therapy, hazard,peculiarity, infant, stricture, depletion, concern, field, ailment, answer, damage, wound, deformity

6. Make upadjectives using one of the suffixes: -al, -ive, -y, -ible, -ant, -able, -ar

Predomination, fault, eruption, blotch, filter, vesicle, constriction, autosome, mutation, assimilation, recession, contraction, susceptibility, catarrh, distention

7. Translate the part of the sentence in brackets

1. **Заячья губа** -это (congenital malformation frequently hereditary, occurring chiefly in the upper lip and having one fissure only; if there are two it is called a double harelip. Harelip, besides being a deformity is attended with a defect of speech and often a cleft of the upper jaw and palate bone , converting the mouth and nose practically into one cavity. In ordinary cases it is easily corrected by an operation).

2. **Расщелина нёба** –это (the most common facial birth defect and the second most commonbirth defect overall. The word “cleft” literally means a split or separation, while the word “palate” means roof of the mouth. So, a cleft palate is a split in the roof of the mouth, and a cleft lip is a split in the lip).

3. **Спина бифида** – это (a developmental birth defect caused by the incomplete closure of the embryonic neural tube. Some vertebrae overlying the spinal cord are not fully formed and remain unfused and open).

IV. Learn to translate medical articles

8. Read the following text

Sickle-cell anaemia

The sickle-cell gene is common in equatorial Africa, Saudi Arabia and south Asia but less common in the Mediterranean and mixed populations of the Americans. It is due to a single point mutation in the Hb β-globin gene chain. When deoxygenated, HbS molecules polymerize into elongated structures causing erythrocytes to deform and haemolyze. Sickled red cells are rigid and block the micro-circulation in various organs causing infarcts.

The inheritance of the disease is autosomal co-dominant (i.e. sickle-cell disease is due to heterozygous inheritance HbAS). The trait is usually asymptomatic. Sickle-cell disease occurs with heterozygous inheritance of the gene (HbSS) or co-inheritance of another β-globin chain disorder such as HbC. Sickle-cell disease and glucose-phosphate dehydrogenase deficiency may occur together because of the high prevalence of both conditions in some regions. They provide protection against malaria.

Severe haemolitic anemia is punctuated by severe pain crises. Young patients alternate periods of good health with acute chains. Later chronic ill health supervenes due to organs damage. Symptoms begin after six months of age as the HbF level declines. The first signs are often acute dactylitis due to occlusive necrosis of the small bones and feet, resulting in digits of various length. The long bones are affected in older children and adults. Anaemia is well tolerated because of cardiac compensation and lower affinity of HbS for oxygen.

Lesson 21. Introduction to Dental Anatomy

I. Learn to pronounce, write and read English words and medical terms.

1. Read the words

Morphology, function, arch, physiology, occlusion, application, practice, component, disturbance, enamel, restorative, practitioner, esthetics, phonetics, mouth, primary, deciduous, dentition, congenital, to appear, cavity, caries, trauma, to emerge, permanent, exfoliated, eruption, emphasize

2. Learn to pronounce the following terms and memorize their Russian equivalents

Occlusion, teeth, dentistry, enamel, deciduous, caries, permanent teeth, molar, incisors, missing teeth, eruption, canines, premolars, mandible, maxillary, baby tooth, periodontal,

II. Text study

3. Read the text, translate it consulting dictionary

Formation of the Dentitions (Overview)

Dental anatomy is defined here as, but is not limited to, the study of the development, morphology, function, and identity of each of the teeth in the human dentitions, as well as the way in which the teeth relate in shape, form, structure, color, and function to the other teeth in the same dental arch and to the teeth in the opposing arch. Thus, the study of dental anatomy, physiology, and occlusion provides one of the basic components of the skills needed to practice all phases of dentistry.

The application of dental anatomy to clinical practice can be envisioned in Figure 1-1, *A* where a disturbance of enamel formation has resulted in esthetic, psychological, and periodontal problems that may be corrected by an appropriate restorative dental treatment such as that illustrated in Figure 1-1, *B*. The practitioner has to have knowledge of the morphology, occlusion, esthetics, phonetics, and functions of these teeth to undertake such treatment.

Humans have two sets of teeth in their lifetime. The first set of teeth to be seen in the mouth is the **primary** or **deciduous** dentition, which begins to form prenatally at about 14 weeks in utero and is completed postnatally at about 3 years of age. In the absence of congenital disorders, dental disease, or trauma, the first teeth in this dentition begin to appear in the oral cavity at the mean age of 6, and the last emerge at a mean age of 28 ± 4 months. The deciduous dentition remains intact

(barring loss from dental caries or trauma) until the child is about 6 years of age. At about that time the first **succedaneous**or **permanent** teeth begin to emerge into the mouth. The emergence of these teeth begins the **transition** or **mixed dentition period** in which there is a mixture of deciduous and uccedaneous teeth present. The transition period lasts from about 6 to 12 years of age and ends when all the deciduous teeth have been shed. At that time the permanent dentition period begins. Thus, the transition from the primary dentition to the permanent dentition begins with the emergence of the first permanent molars, shedding of the deciduous incisors, and emergence of the permanent incisors. The mixed dentition period is often a difficult time for the young child because of habits, missing teeth, teeth of different colors and hues, crowding of the teeth, and malposed teeth. The permanent, or succedaneous, teeth replace the exfoliated deciduous teeth in a sequence of eruption that exhibits some variance, an important topic that will be considered in Chapter 16.

After the shedding of the deciduous canines and molars, emergence of the permanent canines and premolars, and emergence of the second permanent molars, the permanent dentition is completed (including the roots) at about 14 to 15 years of age, except for the third molars, which are completed at 18 to 25 years of age. In effect, the duration of the permanent dentition period is 12+ years. The completed permanent dentition consists of 32 teeth if none are congenitally missing, which may be the case.

Nomenclature

The first step in understanding dental anatomy is to learn the nomenclature, or the system of names, used to describe or classify the material included in the subject. When a significant term is used for the first time here, it is emphasized in bold. Additional terms will be discussed as needed in subsequent chapters. The term **mandibular** refers to the lower jaw, or mandible. The term **maxillary** refers to the upper jaw, or maxilla. When more than one name is used in the literature to describe something, the two most commonly used names will be used initially.

After that they may be combined or used separately as consistent with the literature of a particular specialty of dentistry, for example, **primary** or **deciduous dentition, permanent** or **succedaneous dentition.** A good case may be made for the use of both terms. By dictionary definition, 1 the term *primary* can mean "constituting or belonging to the first stage in any process." The term *deciduous* can mean "not permanent, transitory." The same unabridged dictionary refers the reader from the definition of *deciduous tooth* to *milk tooth,* which is defined as "one of the temporary teeth of a mammal that are replaced by permanent teeth. Also called *baby tooth, deciduous tooth.*" The term *primary* can indicate a first dentition and the term *deciduous* can indicate that the first dentition is not

permanent, but not unimportant. The term *succedaneous*can be used to describe a successor dentition and does not suggest permanence, whereas the term *permanent* suggests a permanent dentition, which may not be the case due to dental caries, periodontal diseases, and trauma. All four of these descriptive terms appear in the professional literature.

Formulae for Mammalian Teeth

The denomination and number of all mammalian teeth are expressed by formulae that are used to differentiate thehuman dentitions from those of other species. The denomination of each tooth is often represented by the initial letter in its name (e.g., I for incisor, C for canine, P for premolar, M for molar). Each letter is followed by a horizontal line and the number of each type of tooth is placed above the line for the maxilla (upper jaw) and below the line for the mandible (lower jaw). The formulae include one side only, with the number of teeth in each jaw being the same for humans.

The dental formula for the primary/deciduous teeth in humans is as follows:

I C M 2-2,1-1,2-2,= 10 This formula should be read as: incisors, two maxillary and two mandibular; canines, one maxillary and one mandibular; molars, two maxillary and two mandibular—or 10 altogether on one side, right or left (Figure 1-2, *A*).

A dental formula for the permanent human dentition isas follows:

I C P M 2-2,1-1,2-2,3-3= 16Premolars have now been added to the formula, two maxillary and two mandibular, and a third molar has beenadded, one maxillary and one mandibular . Systems for scoring key morphological traits of the permanent dentition that are used for anthropological studies are not described here. However, a few of the morphological traits that are used in anthropological studies2 are considered in the following chapters, (e.g., shoveling, Carabelli's trait, enamel extensions, and peg-shaped incisors). Some anthropologists use di1, di2, dc, dm1, and dm2 notations for the deciduous dentition and I1, I2, C, P1, P2, M1, M2, and M3 for the permanent teeth. These notations are generally limited to anthropological tables because of keyboard incompatibility.

4. Give detailed answers

1. What does the study of dental anatomy, physiology, and occlusion provide? 2. What has a disturbance of enamel formation resulted in? 3.How many sets of teeth do humans have in their lifetime? 4. What is the first set of teeth to be seen in the mouth? 5. When does the primaryor deciduousdentition begin to form? 6. In what case the first teeth in this dentition begin to appear in the oral cavity at the mean age of 6, and the last emerge at a mean age of 28 ± 4 months? 7. How long does the deciduous dentitionremain intact? 8. In what **period** is there a mixture of deciduous and uccedaneous teeth present? 9.Why is the mixed dentition period

often a difficult time for the young child? 10. When is the permanent dentition completed (including the roots)? 11. What is the first step in understanding dental anatomy? 12. What does the term mandibular refer to? 13. What is the duration of the permanent dentition period? 14. What can the term *primary* mean? 15. What can the term *deciduous* mean? 16. What is the dental formula for the primary/deciduous teeth in humans? 17. What is a dental formula for the permanent human dentition?

5. Fill in the blanks with the proper words from the list below

1. The _____of dental anatomy to clinical practice can be envisioned in Figure 1-1, *A*. 2. _____ have now been added to the formula. 3. The denomination and number of all mammalian teeth are expressed by formulae that are used to differentiate thehuman _____from those of other species. 4. This _____should be read as: incisors, two maxillary and two mandibular. 5. Each letter is followed by a horizontal line and the number of each type of tooth is placed above the line for _____ (upper jaw) and below the line for _____ (lower jaw). 6. The formulae include one side only, with the number of teeth in each ____ being the same for humans. 7. The term _____can indicate a first dentition and the term _____can indicate that the first dentition is not permanent, but not unimportant. 8. The term _____can be used to describe a successor dentition and does not suggest permanence. 9.The term ____suggests a permanent dentition, which may not be the case due to dental caries, periodontal diseases, and trauma. 10. After the shedding of the deciduous _____, emergence of the permanent canines and premolars, and emergence of the second permanent molars, the permanent dentition is completed (including the roots) at about 14 to 15 years of age, except for the third _____, which are completed at 18 to 25 years of age.

Molars, succedaneous, premolars, formula, application, dentitions, mandible, the maxilla, canines and premolars, the permanent,

III. Learn to translate medical articles

6. Read the following text

Dental Caries

Dental Caries is a disease which progressively destroys the tooth, resulting from the solution of inorganic and decomposition of the organic tooth structures. Enamel or dentin once destroyed by dental decay cannot repair or regenerate themselves. The most vulnerable parts of the tooth to dental decay are those areas which cannot be cleansed readily through the process of mastication or by personal

prophylactic measures: the pits and fissures of the posterior teeth, then the interproximal surfaces of the teeth adjacent to the contact points. Dental caries may be typed as rapid and acute, intermittent in progress, slow, senile and arrested.

It is believed that dental caries is the result of chemical and bacterial activity; heredity, metabolism and the local environment of the oral cavity all play significant roles in the cause, prevention or control of dental caries.

A decayed tooth is treated by amalgam or inlay restoration, by overlays, capping, extraction or construction of a prosthetic appliance. The need for these operations is based upon the biological function as well as mechanical findings.

Part III. Grammar Reference Book

§ 1 Падежи имён существительных

Имена существительные в английском языке имеют всего два падежа: общий и притяжательный. Падежные отношения передаются в основном при помощи предлогов:

of - родительный падеж (кого? чего?). *Examination of the patient* − Обследование больного;

to- дательный падеж (кому? чему?) *He gave this medicine to his patient.* − Он дал это лекарство своему больному.

by, with-творительный падеж (кем? чем?) *The patient was examined by the doctor in charge*. − Больной был осмотрен лечащим врачом.

Имена существительные, не имеющие *–s* во множественном числе, образуют притяжательный падеж при помощи *–'s*, например: *children's ward.* Имена существительные, оканчивающиеся в ед. числе на -s , принимают либо –'s, либо «'», например: Dickens' novels or Dickens's novels

§ 2 Местоимения

Личные местоимения

число	лицо	Личные	объектные	притяжательные
единственное	1 3	I – я He- он She -она It – он, она, оно	Me- меня, мне Him- его, ему Her –её, ей It- его, ему, её, ей	My-мой,моя, моё, мои His- его Her-её It – его, её
множественное	1 2 3	We- мы You – ты, вы They -они	Us- нас, нам You –вас, вам Them-их, им	Our- наш, наша, наше, наши Your – ваш, ваша, ваше, ваши Their- их

Возвратные местоимения

Единственное число	Множественное число
Myself	Ourselves

Himself – сам, себя Herself itself	Yourselves – сами, себя themselves

Указательные местоимения

Единственное число	Множественное число
This –этот, эта, это That –тот, та, то	These -эти Those -те

Вопросительные местоимения

Who? − Кто? What? − Что? Какой?
Whose? − Чей? Чья? Чьё? Whom?− Кого? Кому?
Which? − Который?

Местоимения some, any, no и их производные

местоимения	Тип предложения
Some-какой-то, некоторый, несколько Any –любой, какой-нибудь, никакой No -никакой Every –каждый, всякий	утвердительное вопросительное отрицательное утвердительное, вопросительное, отрицательное
Something –что-то, что-нибудь Somebody –кто-то, кто-нибудь Somewhere –где-то, куда-нибудь	Утвердительное
Anything –что-нибудь, ничего Anybody –любой, каждый Anyone - любой, каждый Anywhere –где-нибудь, везде	вопросительное
Nothing-ничего Nobody -никто No one -никто Nowhere –нигде, никуда	отрицательное
Everything -всё Everybody -все	утвердительное, вопросительное, отрицательное

Everywhere –везде, повсюду	

Местоимения much, little, many, few

Much "много", little "мало" употребляются с неисчисляемыми существительными, например: much water – много воды, little time –мало времени;

Many "много", few "мало" употребляются с исчисляемыми существительными, например: many books - много книг, few chairs - мало стульев.

A few –"несколько"; a little – "немного"

§ 3 Прилагательные и наречия

Степени сравнения

Сравнительная степень односложных и некоторых двусложных прилагательных и наречий образуется при помощи суффикса – **er;** превосходная степень − при помощи суффикса **–est.**

Short — short**er** —the short**est**

Короткий — короче — самыйкороткий

Clever — clever**er** — the clever**est**

Умный — умнее — самыйумный

Сравнительная и превосходная степень многосложных прилагательных и наречий образуется при помощи служебных слов, соответственно ***"more", "themost"***

Important — ***more*** important — ***the most*** important

Важный — более важный — самый важный

Rapidly — ***more*** rapidly — ***most*** rapidly

Прилагательные и наречия, степени сравнения которых образуются не по правилам

good	better	the best
well	better	best
bad	worse	the worst
badly	worse	worst
much	more	the most
many	more	the most
little	less	the least

§ 4 Глагол

Спряжение глаголов *to be, to have, to do (Simple Tenses)*

глагол	лицо	Present Simple	Past Simple	Future Simple
To be	I	Am	Was	Shall be
	He	Is	Was	Will be
	She	Is	Was	Will be
	It	Is	Was	Will be
	We	Are	Were	Shall be
	You	Are	Were	Will be
	They	are	were	Will be
To have	I	Have		Shall have
	He	Has		Will have
	She	Has		Will have
	It	Has	had	Will have
	We	Have		Shall have
	You	Have		Will have
	They	have		Will have
To do	I	Do		Shall do
	He	Does		Will do
	She	Does		Will do
	It	Does	Did	Will do
	We	Do		Shall do
	You	Do		Will do
	They	Do		Will do

Вопросительная форма

1. **Is** he a surgeon? **Was** he a surgeon? **Will** he **be** a surgeon? **Will** they **be** at the clinic? **Are** they at the clinic? **Were** they at the clinic?

2. **Has** he pain in the abdomen? **Had** he pain in the abdomen? **Will** he **have** pain in the abdomen? **Has** she a new patient? **Had** she a new patient? **Will** she **have** a new patient?

3. **Does** he work in the clinic? **Did** he work in the clinic? **Will** he work in the clinic? **Do** they examine patients? **Did** they examine patients? **Will** they examine patients?

Отрицательная форма

1. He **is not** a surgeon. He **was not** a surgeon. He **will not be** a surgeon. She **is not** a doctor. She **was not** a doctor. She **will not be** a doctor. They **are not** in the clinic. They **were not** in the clinic. They **will not be** in the clinic.
2. He **has no** pains in the abdomen. He **had no** pains in the abdomen. He **will not have** pains in the abdomen. She **has no** pains in the abdomen. She **had no** new patients. She **will have no** new patients.
3. He **does not work** in the clinic. He **did not work** in the clinic. He **will not work** in the clinic. She **does not treat** patients. She **did not treat** patients. She **will not treat** patients. They **do not examine** the patients. They **did not examine** the patients. They **will not examine** the patients.

§ 5 Основные формы глагола

I **Infinitive**	**II** **Past Simple**	**III** **Participle II**	**IV** **Participle I**
to ask *спрашивать*	asked *спрашивал*	asked *спрошенный*	asking *Спрашивающий, спрашивая*
to break *ломать*	broke *ломал*	broken *сломанный*	breaking *ломающий, ломая*

§ 6 Simple Tenses

Группа простых времён образуется от 1-й формы глагола.

Present Simple	**Past Simple**	**Future Simple**
I ask	I ask**ed**	I shall ask
He ask**s**	He ask**ed**	He will ask
She ask**s**	She ask**ed**	She will ask
It ask**s**	It ask**ed**	It will ask
We ask	We ask**ed**	We shall ask
You ask	You ask**ed**	You will ask
They ask	They ask**ed**	They will ask

Наречия времени, которые используются с глаголами в **Simple Tenses:**
Constantly (постоянно), as a rule (как правило), every day (month, week, year, summer...) (каждый день, месяц, неделю, год, лето…), often (часто), seldom

(редко), from time to time (иногда, время от времени), usually (обычно), sometimes (иногда), last week (на прошлой неделе), next week (наследующей неделе), yesterday (вчера), tomorrow (завтра)

§ 7. Progressive Tenses

Группа длительных времён образуется с помощью одной из форм вспомогательного глагола **to be** и **IV формы глагола**

Tobe +IV форма глагола = продолженное время

What **is** he **doing**? – Что он делает?
He **is examining** a patient now. - Сейчас он осматривает пациента.

Present Progressive	**Past Progressive**	**Future Progressive**
I am asking	I was asking	I shall be asking
He is asking	He was asking	He will be asking
She is asking	She was asking	She will be asking
It is asking	It was asking	It will be asking
We are asking	We were asking	We shall be asking
You are asking	You were asking	You will be asking
They are asking	They were asking	They will be asking

Наречия времени, которые используются с глаголами в **Progressive Tenses:** Now (сейчас), atpresent (внастоящеевремя), atthis (that) time (вэто (то) время), for (втечение), from... to (с… до), since... (с…), at (в), presently (в настоящее время)

§ 7 Perfect Tenses

Группа завершённых времён образуется с помощью одной из форм вспомогательного глагола **to have** и **III** формы основного глагола.

To have + 3-я форма глагола = завершенные времена

Present Perfect	**Past Perfect**	**Future Perfect**
I have asked	I had asked	I shall have asked
He has asked	He had asked	He will have asked
She has asked	She had asked	She will have asked
It has asked	It had asked	It will have asked

We have asked You have asked They have asked	We had asked You had asked They had asked	We shall have asked You will have asked They will have asked

Наречия времени, которые используются с глаголами в **PerfectTenses:**
Yet (уже), justonly (толькочто), already (уже), ever (когда-нибудь), never (никогда), recently (недавно), lately (недавно, в последнее время)

§ 8 Perfect Progressive Tenses

Группа завершено - продолженных времён образуется с помощью одной из форм вспомогательного глагола **to have, III** формы глагола **to be (been)** и **IV** формы основного глагола.

To have been + 4-я форма глагола = группа завершено- продолженных времён

Present Perfect Progressive	**Past Perfect Progressive**	**Future Perfect Progressive**
I have been asking He has been asking She has been asking It has been asking We have been asking You have been asking They have been asking	I had been asking He had been asking She had been asking It had been asking We had been asking Youhad been asking Theyhad been asking	I shall have been asking He will have been asking She will have been asking It will have been asking We shall have been asking You will have been asking They will have been asking

Наречия и предлоги, которые используются с глаголами в **Perfect Progressive Tenses:**
For, since, already

§ 9 Страдательный Залог (Passive Voice)

Страдательный залог в английском языке образуется с помощью одной из форм глагола **to be** и **третьей формы смыслового глагола**

Tobe + 3-я форма глагола = страдательный залог

Indefinite Passive: to be + III форма смыслового глагола
Continuous Passive: to be being + III форма смыслового глагола
Perfect Passive: to have been + III форма смыслового глагола

Лицо, совершающее действие, выражается существительным или местоимением с предлогом **“by”**

Времена английского глагола в страдательном залоге

Tenses	**Present**	**Past**	**Future**
Simple	I am asked He is asked She is asked It is asked We are asked You are asked They are asked	I was asked He was asked She was asked It was asked We were asked You were asked They were asked	I shall be asked He will be asked She will be asked It will be asked We shall be asked You will be asked They will be asked
Progressive	I am being asked He is being asked She is being asked It is being asked We are being asked You are being asked They are being asked	I was being asked He was being asked She was being asked It was being asked We were being asked You were being asked They were being asked	—
Perfect	I have been asked He has been asked She has been asked	I had been asked He had been asked She had been	I shall have been asked He will have

	It has been asked We have been asked You have been asked They have been asked	asked It had been asked We had been asked You had been asked They had been asked	been asked She will have been asked It will have been asked We shall have been asked You will have been asked They will have been asked

На русский язык глаголы в страдательном залоге переводятся:

1. сочетанием глагола быть (в прошедшем или будущем времени) с краткой формой причастия.

The test **was written**. Тест **был написан**.

2. возвратным глаголом.

Medical texts**are translated** at every lesson. Медицинские тексты **переводятся** на каждом уроке.

3. неопределённо- личным предложением.

He **was examined**. Его **обследовали.**

4. глаголом в действительном залоге.

The test **was written by them**. **Они перевели** текст.

NB!! Подлежащее английского предложения страдательного залога при переводе на русский язык может стоять не только в именительном падеже, но и в любом косвенном падеже, в зависимости от контекста.

He was thoroughly examined. **Его** тщательно обследовали.

§ 10 Модальные глаголы (Modal Verbs)

Модальность – особая грамматическая категория, выражающая отношение говорящего к тому, что он высказывает.

Например: Я пойду туда. Я ***могу*** пойти туда. Я ***мог бы*** пойти туда. Я ***непременно*** пойду туда. Я ***должен*** пойти туда.

В английском языке четыре модальных глагола – ***can, may, must, ought*** и вот, что их объединяет:

1. Модальные глаголы не называют действия, а только выражают отношение к нему. За модальным глаголом всегда следует глагол в форме инфинитива без частицы **“ to”** (после***ought***– инфинитив с частицей “**to”**).

2. Модальные глаголы не изменяются по лицам и числам. Для всех лиц и чисел у них единая, неизменяемая форма.
3. Модальные глаголы не имеют сложных временных форм и повелительного наклонения.
4. Модальные глаголы не имеют неличных форм (инфинитива, причастия, герундия).
5. Вопросительную и отрицательную формы модальные глаголы образуют самостоятельно, то есть без вспомогательного глагола.
Can you **speak** English? You **mustn't do** it.
Модальный глагол **«can»** переводиться русским ***мочь***, выражает умение и способность что-либо делать.
I can give you anything you ask. Я дам тебе всё, что только ты попросишь.
Nick can speak English fluently. Ник свободно говорит по-английски.
У глагола **can** есть форма прошедшего времени – **could**
I could come earlier. Ямогприйтираньше. (Реальная возможность в прошлом)
Could it be true? Неужели это правда? (Сомнение)
Could you tell me how to get to the museum? Не могли бы вы сказать, как пройти к музею? (Вежливая просьба).
Глагол не имеет формы будущего времени. Когда нужно передать значение ***я смогу, мы сможем***, употребляется оборот ***shall be able to\ will be able to***
I **shall be able to** help you tomorrow.
They **will not be able** to come.
В вопросительной форме **can** (как и другие модальные глаголы) стоит на первом месте, за ним подлежащее:

Can you swim?
Could he read before he went to school?

Отрицательная форма образуется с помощью частицы **not**
I **cannot (can't)** swim.
Обратите внимание: полая форма **cannot** пишется слитно.
Модальный глагол **«must»** всегда говорит о долге, обязанности и необходимости.
На русский язык переводится словами: ***должно, надо, необходимо***.
Future doctors **must know (должнызнать)** human anatomy very well.
NB!! Оборот **to have to** заменяет глагол **must**во всех трёх временах.
He **must pass** the examination in anatomy. (Present)
He **has to pass** the examination in anatomy. (Present)
He **had to pass** the examination in anatomy. (Past)
He **will have to pass** the examination in anatomy. (Future)

Вопросительная форма с **must** требует обратного порядка слов (**must** на первом месте)

Must I **go** immediately?

Отрицательнаяформа: **must not, mustn't**

Вопросительная и отрицательная формы оборота **to have to** образуется с помощью вспомогательного глагола **"to do".**

Does she have to go out?

Do you have to carry out this experiment?

Модальный глагол **«may»** имеет два основных значения:

Разрешение:

You **may go out** tonight. **May** I **come** in?

Вероятность и возможность, сомнение и неуверенность:

Nick tells that Ann **may come** any minute.

Форма прошедшего времени **might**

Первое значение **may** (разрешение) в будущем времени передается с помощью оборота **will be allowed to\shall be allowed to**

She **will be allowed** to get out next week.

Второе значение **may (вероятность, возможность, сомнение)** в будущем времени передаётся так:

May + инфинитив + слова-указатели будущего времени

She **may get out next week.** Она**, вероятно,** сможет выходить **на следующей неделе.**

Эквиваленты модальных глаголов

Модальный глагол **«can»** переводиться русским ***мочь***, выражает умение и способность что-либо делать. Глагол не имеет формы будущего времени. Когда нужно передать значение ***я смогу, мы сможем***, употребляется оборот ***shall be able to\ will be able to***

Модальный глагол **«must»** всегда говорит о долге, обязанности и необходимости.

На русский язык переводится словами: ***должно, надо, необходимо***.

NB!! Оборот **to have to** заменяет глагол **must** во всех трёх временах и переводится глаголом ***приходиться.***

He **must pass** the examination in anatomy. (Present)

He **has to pass** the examination in anatomy. (Present)

He **had to pass** the examination in anatomy. (Past)

Вопросительная и отрицательная формы оборота **to have to** образуется с помощьювспомогательного глагола **to do.**

Does she have to go out?
Do you have to carry out this experiment?

§ 11. Оборот «there is, there are»

Оборот «there is, there are» имеет значение: ***есть, находится, имеется, существует.***

Перевод таких предложений надо начинать с обстоятельства места. Если обстоятельство в предложении отсутствует, перевод начинается со сказуемого.

There are many hospitals in our country.
В нашей стране много больниц.
There are hospitals for children.
Имеются больницы для детей.

В вопросительном предложении глагол в личной форме ставится перед **there**
Is there a surgical department in this hospital?

В полном отрицательном предложении после оборота **there + tobe**ставится отрицательное местоимение «**no»**

There **was no** lecture on anatomy yesterday.

Перед **many, much** и **числительными** ставится **not**вместо **no**

There **will be not many** lectures on physics this month.

§ 12. Функции и перевод слова That (those)

Функции	**Примеры**	**Перевод**
1.**that** (ед.ч.) указательное местоимение: ***тот, та, то*** **Those** (мн.ч.)- ***те***	Send me that patient, please Those boys are not ill.	Пришлите мне, пожалуйста, **того** больного **Те** мальчики не больны.
2.**that of, those of** – слова-заменители	Her **report** was more informative than **that of** Dr. Ivanov.	Её ***сообщение*** содержало больше информации, чем ***сообщение*** врача Иванова
3.**that** – относительное местоимение «***который»***; вводит придаточное определительное предложение	I treat 5 patients that suffer from infectious hepatitis.	Я наблюдаю за пятью пациентами, ***которые***

		больны вирусным гепатитом.
4. **that -** союз ***то, что***; вводит придаточное подлежащее и придаточное сказуемое.	***Thathe is seriously ill*** doesn't trouble anybody. The danger is ***that such a disease is highly infectious.***	***То, что он серьёзно болен***, никого не беспокоит. Опасность заключается в том, ***что эта болезнь крайне заразна.***
5. **that**– союз ***что;*** вводит придаточное дополнительное предложение	I said ***that blood transfusion had been already done for the patient***	Я сказала, ***что этому больному уже сделали переливание крови.***

§ 13. Неопределённые местоимения " some, any, no"

Местоимения	**Перевод**	**Употребление**
Some	некоторый, какой-то, какой-нибудь, несколько	В утвердительных предложениях
Any	1) всякий, любой 2) какой-нибудь	1) в утвердительных предложениях 2) в вопросительных предложениях
No	никакой	В отрицательных предложениях

В английском языке существует два варианта построения отрицательного предложения.

She **did not see anybody** in the room. = She **saw nobody** in the room.

Она **никого не видела** в комнате.

В отрицательных предложениях при наличии **no, nothing, nobody, noone,none, nowhere** глагол ставится в утвердительной форме, так как двух отрицаний в английском предложении не бывает.

§ 14. Функции и перевод слова «IT»

1. Личное местоимение.

Подлежащее Where is the drug? **It** is on the table	Переводится **он, она, оно для** неодушевленных предметов и животных Где лекарство? **Оно** на столе.
Дополнение It is a very urgent case and we shall discuss **it** at once.	Переводится **его, её** для неодушевленных предметов Это очень серьёзный случай, и мы обсудим **его** немедленно.

2. Указательное местоимение «это». Употребляется в функции подлежащего

What is it? **It** is the case history of this child.
Что это? **Это** история болезни ребёнка.

3. Служебное слово; не переводится

Подлежащее в безличном предложении	It is cold today. Сегодняхолодно.
Вводит подлежащее, выраженное инфинитивом глагола или придаточным предложением	It is not easy to cure cardiovascular diseases. Трудно излечить сердечно-сосудистые заболевания. It is known that he works as a surgeon. Известно, что он работает хирургом.
Выделяет один из членов предложения (стоит на месте подлежащего главного предложения, а подлежащим придаточного предложения являются союзные слова **who, that, when**)	**It** is Lomonosov **who** founded Moscow University. (Именно) Ломоносов основал Московский университет.

§ 15. Виды придаточных предложений

1. Придаточные подлежащие соединяются с главным предложением союзами **that, who, what**

That the boy has infectious hepatitis is quite clear. ***То***, ***что этот мальчик болен инфекционным гепатитом***, совершенно ясно.

2. Придаточные сказуемые

The question is ***whether he will be able to translate the article***. Вопрос состоит в том, ***сможет ли он перевести эту статью***.

3. Придаточные дополнительные, которые присоединяются к главному предложению союзами **that, whether, if, when,why**или бессоюзно.

I saw **that** he was pale. Я видела, что он был бледен.

I am sure you are right. (бессоюзное) Я уверена, что ты прав.

4. Придаточные обстоятельственные:

а) времени, которые присоединяются к главному предложению союзами **when, while, as, before, after, till, since**, и т.д.

б) места, которые присоединяются к главному предложению союзами

where, wherever - *где бы ни, куда бы ни*

в) причины, которые присоединяются к главному предложению союзами **because, since, as**.

г) цели, которые присоединяются к главному предложению союзами

sothat -*с тем, чтобы*, inorderto- *для того, чтобы*, lest- *чтобы… не.*

д) условия, которые присоединяются к главному предложению союзами **if-*если*, provided -*при условии*, incase -*в случае*, unless- *если не***

5. Определительные придаточные, которые вводятся союзами **who, whom, whose, which, that, when, where, why** etc**.**

§ 16.Употребление глагола в настоящем времени в значении будущего в условных и временных придаточных предложениях.

В придаточных предложениях времени и условия вместо требующегося по смыслу будущего времени употребляется одна из форм настоящего времени, которая переводится на русский язык будущим временем.

I **shall give** you his address as soon as (if, when) you **ring** me up.Я**дам**вамегоадрес, кактольковымне**позвоните**.

После союзов **if, when, before, after** в обстоятельственных придаточных предложениях условия и времени FuturePerfect заменяется PresentPerfect, которое переводится будущим временем, если глагол-сказуемое главного предложения стоит в будущем времени.

After the assistant professor **has made** a morning round, he **will analyze** serious cases. После того, как доцент **сделает обход**, он **будет разбирать** тяжёлых больных.

§ 17. Функции и перевод слов since, as.

Since

1. Предлог **«с»**

2. Союз **«так как»**

As

1.Союз перед существительным – **как, в качестве**

2. Часть составных предлогов **as to, as for – что касается**

3.Союз, вводящий придаточное предложение причины – **так, как; поскольку**

4. Часть составных союзов**as…as – так же…как; not so…as- не так...как; as long as - пока; as soon as – как только; as far as – насколько;**

§ 18. 1.Причастие I, Причастие II

Причастие настоящего времени, Present Participle, или Participle I, - это четвёртая форма глагола. Причастие настоящего времени образуется от инфинитива путём добавления окончания **- ing**.(to write – writing, to live – living)иучаствуетвобразованииивременгруппы Continuous. (He is writing) и Perfect Continuous (I have been writing). **Перевод**: living- живущий, writing - пишущий

Причастие прошедшего времени, Past Participle, или Participle II – это третья форма глагола. Причастие прошедшего времени правильных глаголов образуется прибавлением окончания **–ed** к инфинитиву (tolive - liv**ed**). Причастие прошедшего времени неправильных глаголов надо знать наизусть, а если не знаете, воспользуйтесь таблицей глаголов неправильного спряжения. Причастие прошедшего времени участвует в образовании всех времён группы

Perfect (He **has lived**, I **had written**, We **shall have written**), а также при образовании страдательного залога (The letter **was written** by me). **Перевод:** done - сделанный, gone – ушедший. Если вы усвоили назначение обоих причастий в качестве неизменяемых форм смысловых глаголов при образовании сложных времён, то прочие роли причастий будут вам понятны, т.к. в русском языке причастия выступают в том же качестве.

She made an **excited** announcement. – Она сделала **эмоциональное** заявление

Her answer was **amusing**. – Ответ её был **забавным.**

He **will be surprised**. – Он **будет удивлён**.

У причастия есть формы времени и залога.

Формы причастия переходных глаголов	
Действительный залог Active Voice	Страдательный залог Passive Voice
Present - singing	Present – being sung
Past – отсутствует	Past – sung

Perfect – having sung	Perfect having been sung

Формы причастия непереходных глаголов
Действительныйзалог Active Voice Present – going Past – gone Perfect – having gone

Функции причастий

1. Определение

Participle I в функции определения может находиться:

перед определяемым словом - alovingmother

после определяемого слова - the teacher delivering a lecture

На русский язык **Participle I** в функции определения переводится причастием действительного залога с суффиксами ***–щий(ся),-вший(ся)***

Loving – любящий

Delivering – читающий

ParticipleII в функции определения может находиться перед определяемым словом - a **broken** leg

после определяемого слова - the hospital **built** in our street

На русский язык **ParticipleII** в функции определения переводится причастием страдательного залога совершенного или несовершенного вида с суффиксами ***–нный, -емый, –имый, –тый***

broken – сломанный; built – построенный

2. Причастие I, Причастие II в функции обстоятельства

Participle I в функции обстоятельства стоит чаще всего в начале предложения и отвечает на вопросы: как? когда? **Переводится** на русский язык **деепричастием** несовершенного вида оканчивающимся на***– а, - я.***

Translating articles on medicine he used a dictionary.

Переводя медицинские статьи, он пользовался словарём.

Перед **Participle I** в функции обстоятельства часто стоит союз ***when*** или ***while.***

Такие словосочетания переводятся:

а) деепричастным оборотом с опущением союза

б) придаточным предложением, которое начинается с союзов ***когда, в то время, как***

в) с помощью существительного с предлогом

While translating articles on medicine I use a dictionary.
а) ***Переводя***медицинские статьи, я пользуюсь словарём.
б) ***Когда я перевожу*** медицинские статьи, я пользуюсь словарём.
в) ***При переводе*** медицинских статей, я пользуюсь словарём.
Perfect Participle Active выполняет функцию обстоятельства времени или причины и переводится на русский язык деепричастием совершённого вида.
Having examined post-operative patients, the doctor on duty left the ward.
Осмотрев послеоперационных больных, дежурный врач вышел из палаты.
Perfect Participle Passive в этой же функции переводится на русский язык обстоятельственным придаточным предложением.
Having been warned about water pollution in this lake we refused to swim there.
Так как мы были предупреждены о загрязнении этого озера, мы отказались в нём купаться.
Перед **ParticipleII** в функции обстоятельства иногда могут стоять союзы ***if, when, unless.*** В таком случае конструкция переводится на русский язык либо безличным обстоятельственным придаточным предложением, в котором подлежащее то же, что и в главном предложении, либо с помощью существительного с предлогом.
When examined, the patient complained of severe headache.
1) ***Когда больного обследовали***, он жаловался на сильную головную боль.
2) ***При обследовании*** больной жаловался на сильную головную боль.

3. Независимый причастный оборот

Независимый причастный оборот имеет собственное подлежащее, выраженное существительным в общем падеже или личным местоимением в именительном падеже. На русский язык этот оборот переводится придаточным обстоятельственным предложением, которое начинается с союзов: ***так как, когда, после того, как.***
The ambulance having arrived, the patient was taken to the hospital.
Когда приехала неотложка, больной был отправлен в больницу.
Формальные признаки независимого причастного оборота:
1) перед причастием стоит существительное без предлога или местоимение в именительном падеже
2) независимый причастный оборот всегда отделен запятой.

§19. Функции и перевод слов «both, both…and»

Both (оба, обе) является местоимением и стоит перед существительным во множественном числе.
Both students fell ill with flu. **Оба студента** заболели гриппом.
both…and (как…так и, и…и) - составной союз

It was **both** cold **and** wet in the house.
В доме было **и** холодно **и** сыро.

§20. Сложное дополнение (ComplexObject)

Конструкция «Сложное дополнение» состоит из имени существительного или объектного местоимения и инфинитива с частицей ***«to».*** Конструкция «Сложное дополнение» занимает в предложении место дополнения и переводится на русский язык придаточным дополнительным предложением, вводимым союзом **«что», «чтобы», «как».**

The doctor wanted **the patient to havehis blood analysis made**.
Врач хотел, **чтобы больной сделаланализ крови.**
They considered **him to be** quite healthy.
Они считали, **что он вполне здоров**.

Конструкция «Сложное дополнение» используется после глаголов, обозначающих:

1) чувственное восприятие: to see, to hear, to watch, to feel, to observe, to notice
2) умственную деятельность: to know, to think, to consider, to believe, to suppose, to expect, to imagine, to find, to trust
3) заявление, сообщение: to pronounce, to declare, to report
4) желание, намерение: to want, to wish, to desire, to mean, to intend, to choose,
5) чувства, эмоции: to like, to dislike, to love, to hate,
6) принуждение, насилие: to make (заставлять), to cause, to get, to have

§21. Сложное подлежащее(ComplexSubject)

Конструкция «Сложное подлежащее» состоит из имени существительного или личного местоимения, занимающих в предложении первую позицию (т.е. позицию подлежащего) и инфинитива с частицей ***«to».*** Между существительным/ местоимением и инфинитивом находится глагол-сказуемое, как правило, в страдательном залоге. При переводе предложений с комплексом «Сложное подлежащее» сказуемое выносится перед подлежащим и переводится неопределённо-личной формой глагола типа **«говорят»,«сообщается , « известно»** и. д., а сам комплекс переводится сложноподчинённым предложением с придаточным дополнительным предложением, вводимым союзом **«что» или «чтобы».**Именная часть комплекса переводится подлежащим придаточного предложения, а инфинитив — сказуемым.

He is said **to be** a good doctor.
Говорят, что он хороший врач.
The new laboratory is known **to have** modern equipment.

Как известно,в новой лаборатории новое оборудование.

Part IV

Appendix 1. Scientist's Status

Bachelor's degree or First degree – степень бакалавра
Bachelor of Science (B.Sc. / B.S) – степень бакалавра в области естественных наук
Bachelor of Arts (A.B. / B.A) - степень бакалавра в области гуманитарных наук
Bachelor of Fine Arts (B.F.A.) - степень бакалавра в области искусства
Bachelor of Business Administration (B. B. A.) – степень бакалавра в области управления
Master's degree – степень магистра
Master of Science (M.S.) - степень магистра в области естественных наук
Master of Arts (M.A.) - степень магистра в области гуманитарных наук
Master of Fine Arts (M.F.A.) - степень магистра в области искусства
Thesis– диссертация
Doctoral thesis– докторская диссертация
Doctor of Philosophy (Ph. D.), Doctoral degree / Doctor's degree / doctorate – степень доктора философии. Эта степень присуждается представителям различных наук как естественных, так и гуманитарных наук и соответствует учёной степени кандидата наук.
Advanced / graduate / higher degree – степени магистра и доктора
Ph.D. doctoral candidate – исследователь, работающий над соответствующей диссертацией, но степени доктора философии ещё не получил
Doctoral candidate –соискатель
Graduate/ postgraduate/ doctoral student - аспирант
Honorary/ higher/ senior doctorates- почётные докторские степени, присуждаемые за долголетнюю и плодотворную научную деятельность: **Doctor of Science (D.Sc.)** (естественные науки), **Doctor of Letters (Litt.D.)** (гуманитарные науки), **Doctor of Laws (L.L.D.)** (юриспруденция)
Senior doctorate – степень доктора наук (используется в устной речи)
Professional degrees: Doctor of Medicine (M.D.), Juris Doctor (J.D.) – профессиональные докторские степени (соответствуют русским дипломам врачей и юристов)
Postdoctoral research fellow, Postdoctoral research associate, Postdoctoral fellow - научные сотрудники с докторской диссертацией, которые

занимаются исследовательской работой одновременно с повышением своей научной квалификации

Visiting Fellow –учёный, который прекратил активную научную деятельность, но не прерывает связи с университетом (профессор-консультант)

Professor/ Full professor (Am) – высшее учёное звание в англоязычных странах

Emeritus professor / Professor emeritus – почетный профессор

Reader/ senior lecturer/ associate professor -доцент

Lecture/ assistant professor (Am) -ассистент

Assistant lecturer/ instructor (Am) –старший преподаватель

Head of Department –заведующий кафедрой

Department - кафедра

Faculty/ College, school (Am) - факультет

Dean -декан

Sub-dean/ associate dean/ assistant dean –заместитель декана

Academic/ teaching staff –преподавательский состав

Chancellor- Ректор

Prorector, Vice rector, Deputy vice-chancellor/ president (Am) -проректор

Vice-president for academic affair / vice-president for research – проректор по учебной работе / по научной работе

Scientist (assistant scientist, research scientist, senior research scientist, principle scientist, senior scientist) – должности сотрудников в научно-исследовательских институтах

Scientific associate - senior scientific associate, research associate - senior research associate, research scientist - senior research scientist – младший/старший научный сотрудник

Director of the institute –директор института

Deputy/associate/ assistant director-зам.директора

Head of department/ division – руководитель отдела

Head/ chief of laboratory – заведующий лабораторией

Head of group – руководитель группы

Project director/leader –руководитель проекта

Head of section –руководитель секции

The humanities group – лаборатория гуманитарных дисциплин

The Nobel Prize – Нобелевская премия

The Royal Society –Королевское общество в Великобритании

The American Academy of Arts and Science –Американская Академия наук и искусств США

The National Academy of Science – Национальная Академия наук США
Members of the Russian Academy of Science – члены Академии наук
Corresponding members – члены-корреспонденты Академии наук
Full members / academicians – действительные члены Академии наук

Appendix 2. General Reading Rules of Chemical Formulas

Буквы латинского алфавита, обозначающие названия элементов, читаются согласно английским названиям букв алфавита.
Знак+читается plus, and, together with, react with.
Знак – обозначает одну связь или единицу родства и не читается.
Знак = читается give, form или produce.
Знак ⟶ читается give, pass over или lead to.
Знак ⟷ читается forms и is formed from.
Цифра (внизу) после названия элемента обозначает число атомов в молекуле.
Цифра перед названием элемента обозначает число молекул.

H_2O [eitʃ tu: ou]
HNO_3 [eitʃ enou Θri:]
$AgNO_3$ [ei dʒi: en ou Θri:]
$C + O_2 \longrightarrow CO_2$
C plus O two give CO two [si: plΛs ou tu: div si: ou tu:]

или: 1 atom of carbon reacts with 1 two-atom molecule of oxygen and produces 1 molecule of carbon dioxide.

$2H_2 + O_2 \longrightarrow 2H_2O$
Two molecules of H two plus O two give two molecules of H two O [tu: ′ mɔlikju:lz əv eitʃ tu: plΛs ou tu: div tu:′ mɔlikju:lz əveitʃ tu: ou]

*или:*Two two-atom molecules of hydrogen react with 1 two-atom molecule of oxygen and produce two molecules of water.

$N_2 + 3H_2 \longleftrightarrow 2NH_3$

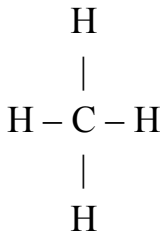
N two plus three molecules of H two form and are formed from two molecules of NH three [en tu: plΛs Θri: ′mɔlikju:lz əv eitʃ tu: fɔ:m ənd a: fɔ:md frəm tu: ′mɔlikju:lz əv eitʃ Θri:]

или: 1 two-atom molecule of nitrogen plus three two-atom molecules of hydrogen form and are formed from two molecules of ammonia.

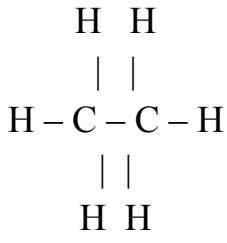
$Na_2CO_3 + CaSO_4 \longrightarrow Na_2SO_4 + CaCO_3$
Na two CO three plus CaSO four form Na two SO four plus CaCO three
[en ei tu: si: ou Θri: plΛs si: ei es ou fɔ: fɔ:m en ei tu: es ou fɔ: plΛs si: ei si: ou Θri:].

*или:*The sodium (Na) and the calcium (Ca) switch places. The sodium combines with the sulphate radical (SO_4) forming sodium sulphate (Na_2SO_4) which

dissolves in water. The calcium combines with the carbonate does not dissolve in water, and so settles to the bottom of the solution.



CH four [si: eitʃ fɔ:]



C two H six [si: tu: eitʃ siks]

Reading an equation:

$$Zn + H_2SO_4 \longrightarrow ZnSO_4 + H_2$$

The + sign on the left of the arrow means “reacts with”; the arrow means “forming” or “producing”; and the + sign on the right of the arrow means “and”.

So this equation is read as: “One atom of zinc reacts with one molecule of sulphuric acid producing one molecule of zinc sulphate and one molecule of hydrogen”.

Appendix 3. General Reading Rules of Mathematical Formulas

+	plus
-	minus
±	plus or minus
x	sign of multiplication; multiplication sign
: ÷	sign of division; division sign
( )	round brackets; parentheses
{ }	curly brackets; braces
[ ]	square brackets; brackets
∴	therefore
∵	since, because, for
≐	approaches; is approximately equal
∼	equivalent, similar; of the order of
≃	is congruent to; is isomorphic to
∞	varies directly as
a = b	a equals b; a is equal to b
a ≠ b	a is not equal to b; a is not b
a ≈ b	a approximately equals b
a ± b	a plus or minus b
a > b	a is greater than b
a < b	a is less than b
$a_2 > a_d$	a second is greater than a d-th
x → ∞	x tends to infinity
a ≥ b	a is greater than or equals b
9 : 3 = 3	nine divided by three is three nine by three equals three nine by three is equal to three the ratio of nine to three is three
½	a (one) half
1/3	a (one) third
¼	a (one) quarter; a (one) fourth
2/3	two thirds
2 ½	two and a half
3 ¾	three and three quarters
0.5	o [ou] point five

	zero point five nought point five point five one half
0.004	o [ou] point o [ou] o [ou] four zero point zero zero four point two oes [ouz] four point two noughts four
0.0000001	o [ou] point six noughts one
15.505	fifteen point five nought five fifteen point five o [ou] five
$4^2 = 16$	the second power of four is sixteen four squared is sixteen
$3^3 = 27$	the cube of three is twenty seven
a^5	a to the fifth power a raised to the fifth power
y^{-10}	y to the minus tenth power

Appendix 4. Units Of Measurement

Меры длины (Liner Measures)

Дюйм	inch	in.	2.54 cm
Фут	foot	ft (12 in.)	30.48 cm
Ярд	yard	yd (3 it)	91.44 cm
Миля	mile	mi. (1760 yd)	1609.33 m
Миля морская	nautical mile (knot)	naut.mi. (6080 ft)	1853.18 m

Мерывеса (Measures of Weights)

Драхма	dram	dr.	1.77 g
Унция	ounce	oz (16 dr.)	28.35 g
Фунт	pound	Ib. (16 oz)	453.59 g
Стон	stone	st. (14 Ib.)	6.35 kg
Квартер	quarter	qr (28 Ib.)	12.7 kg
Центнер	hundredweight	hwt (112 Ib.)	50.8 kg
Тоннабольшая	ton	t (20 hwt)	1016.048 kg

Меры жидких и сыпучих тел (Measures of Volume)

Джил	gill	-	0.14 l
Пинта	pint	pt (4 gills)	0.57 l
Кварта	quart	qt (2 pt)	1.14 l
Галлон	gallon	gal. (4 qt)	4.55 l
Бушель	bushel	bsh. (8 gal.)	36.37 l
Квартер	quarter	qr (8 bsh.)	290.94 l

Меры площади (Square Measures)

Кв. дюйм	square inch	sq.in.	6.45 cm^2
Кв. фут	square foot	sq.ft (144 sq.yd)	9.29 cm^2
Кв. ярд	square yard	sq.yd (9 sq.ft)	0.836 m^2
Акр	acre	ac. (4840 sq.yd)	0.4 hectare
Кв. миля	square mile	sq.mi. (640 ac.)	2.59 km^2

Time

60 seconds	=	1 minute

60 minutes	=	1 hour
24 hours	=	1 day
7 days	=	1 week

Angles

60 seconds (60″)	=	1 minute (1′)
60 minutes (60′)	=	1 degree (1°)
90 degrees (90°)	=	1 right angle
360 degrees (360°)	=	1 circle
4 right angles	=	1 circle

Список литературы

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