



ΠΑΝΕΠΙΣΤΗΜΙΟ ΙΩΑΝΝΙΝΩΝ
ΑΝΟΙΚΤΑ ΑΚΑΔΗΜΑΪΚΑ ΜΑΘΗΜΑΤΑ

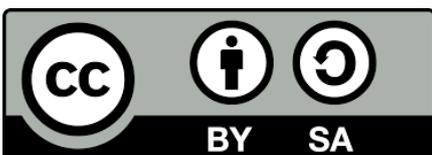


Τίτλος Μαθήματος: Αγγλική Γλώσσα II - Ιατρική ορολογία

Ενότητα: Αιματολογικές εξετάσεις (blood testing)

Διδάσκων: Θεοδώρα Τσελίγκα

Τμήμα: Ιατρικής



Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης

Medical English II

Blood testing

(Adapted from: <http://www.wikipedia.org> and Cohen, B.J. (2004). Medical Terminology: An illustrated guide. Philadelphia: Lippincott Williams & Wilkins.

A blood test is a laboratory analysis performed on a blood s_____ that is usually extracted from a v_____ in the arm using a n_____, or via fingerprick. Blood tests are used to determine physiological and biochemical states, such as disease, mineral content, drug effectiveness, and organ f_____. They are also used in drug tests. Although the term blood test is used, most routine tests (except for most haematology) are done on blood p_____ instead of blood cells.

Complete blood count

A complete blood count (CBC), also known as full blood count (FBC) or full blood exam (FBE) or blood panel, is a test panel requested by a doctor or other medical professional that gives information about the cells in a patient's blood. A scientist or lab technician p_____ the requested testing and provides the requesting medical professional with the results of the CBC.

The cells that c_____ in the bloodstream are generally divided into three types: white blood cells (leukocytes), red blood cells (erythrocytes), and p_____ (thrombocytes). Abnormally high or low counts may i_____ the presence of many forms of disease, and hence blood counts are amongst the most commonly performed blood tests in medicine, as they can provide an overview of a patient's general health status.

A CBC comprises usually the following tests:

- Erythrocyte sedimentation rate (ESR) – The rate of settling of erythrocytes per unit of time.
- Total h(a)emoglobin (Hb or HgB) - The amount of h(a)emoglobin in the blood, expressed in grams per deciliter.
- Hematocrit (HCT) or packed cell volume (PCV) - This is the fraction of whole blood volume that consists of red blood cells.
- Total red blood cells (RBC) — The number of red cells per μL (cubic millimeter) of blood.
- Platelet count (PLC), i.e. information about platelets' size and the range of sizes in the blood.
- Mean platelet volume (MPV) - a measurement of the average size of platelets.
- Total white blood cells (WBC) — All the white cell types are given as a percentage and as an absolute number per litre.
- A white blood cell differential will also include:

Neutrophil granulocytes — May indicate bacterial infection. May also be raised in acute viral infections. Because of the segmented appearance of the nucleus, neutrophils are sometimes referred to as "segs."

Lymphocytes — Higher with some viral infections such as glandular fever Also raised in chronic lymphocytic leukemia (CLL). Can be decreased by HIV infection. In adults, lymphocytes are the second most common WBC type after neutrophils.

Monocytes — May be raised in bacterial infection, tuberculosis, malaria, Rocky Mountain spotted fever, monocytic leukemia, chronic ulcerative colitis and regional enteritis.

Eosinophil granulocytes — Increased in parasitic infections, asthma, or allergic reaction.

Basophil granulocytes — May be increased in bone marrow related conditions such as leukemia or lymphoma.

A manual count will also give information about other cells that are not normally present in peripheral blood, but may be released in certain disease processes.

Clinical aspects: Blood

1) Anemia

Anemia is defined as a decrease in the amount of hemoglobin in the blood. Anemia may result from too few red blood cells, cells that are too small or too little hemoglobin in the cells. Anemia is the most common disorder of the blood. There are several kinds of anemia, produced by a variety of underlying causes, the most basic of which include excessive blood loss (acutely such as a hemorrhage or chronically through low-volume loss), excessive blood cell destruction (hemolysis) or deficient red blood cell production (ineffective hematopoiesis).

Aplastic anemia, sideroblastic anemia and sickle cell anemia are some of the commonest types.

2) Neoplasms

Leuk(a)emia is a neoplasm of white blood cells. The rapidly dividing but incompetent white cells (called 'blasts') accumulate in the tissues and crowd out the other blood cells. The symptoms of leukemia include anemia, fatigue, easy bleeding, splenomegaly and sometimes hepatomegaly (see Figure below).

Leukemias can be differentiated as acute or chronic based on clinical progress. The acute forms of leukemia are acute lymphoblastic (lymphocytic) leukemia (ALL) and acute myeloblastic (myelogenous) leukemia (AML). Acute leukemia is the most common form of cancer in young children. With treatment, remission rate is high for ALL, but the prognosis in AML is poor for both children and adults.

Chronic granulocytic leukemia, also called chronic myelogenous leukemia, affects young to middle-aged adults. Most cases show the Philadelphia chromosome (Ph), an inherited anomaly in which part of chromosome 22 shifts to chromosome 9.

The causes of leukemia are unknown but may include exposure to radiation or harmful chemicals, hereditary factors and perhaps virus infection. Treatment of leukemia includes chemotherapy, radiation therapy and bone marrow transplantation. One advance in transplantation is the use of umbilical cord blood to replace blood-forming cells in bone marrow. This blood is more readily available than bone marrow and does not have to match as closely to avoid rejection.

Exercise 1

Try to fill in the blanks.

1. The liquid fraction of the blood is called _____.
2. The iron-containing pigment in red blood cells that carries oxygen is called _____.
3. A substance that induces the formation of antibodies is a(n) _____.
4. The cell fragments active in blood clotting are the _____.
5. The substance that forms a blood clot is named _____.
6. Disorder involving lack of hemoglobin in the blood _____.
7. _____ is a compound that contains.

Exercise 2

Try to match the test results with possible causes.

Widely used blood tests

A. A full blood count (FBC) is probably the most widely used blood test. It is used to assess your general state of health and to screen for certain conditions, such as anaemia.

1. Low haemoglobin indicates	a. you have an infection somewhere in your body. Rarely, this could be a sign of leukaemia.
2. High haemoglobin may be due to	b. anaemia, which has a number of possible causes, including internal bleeding or a poor diet.
3. A low white blood cell count may be due to	c. an underlying lung disease or problems with the bone marrow.
4. A high white blood cell count usually suggests that	d. a viral infection or an autoimmune condition (where the immune system attacks healthy tissue).
5. A low platelet count may be due to	e. inflammatory conditions, infection or a problem with the bone marrow.
6. A high platelet count may be due to	f. problems with your bone marrow, a viral infection or more rarely, cancer of the bone marrow. However, it can also be genetic and of no significance.

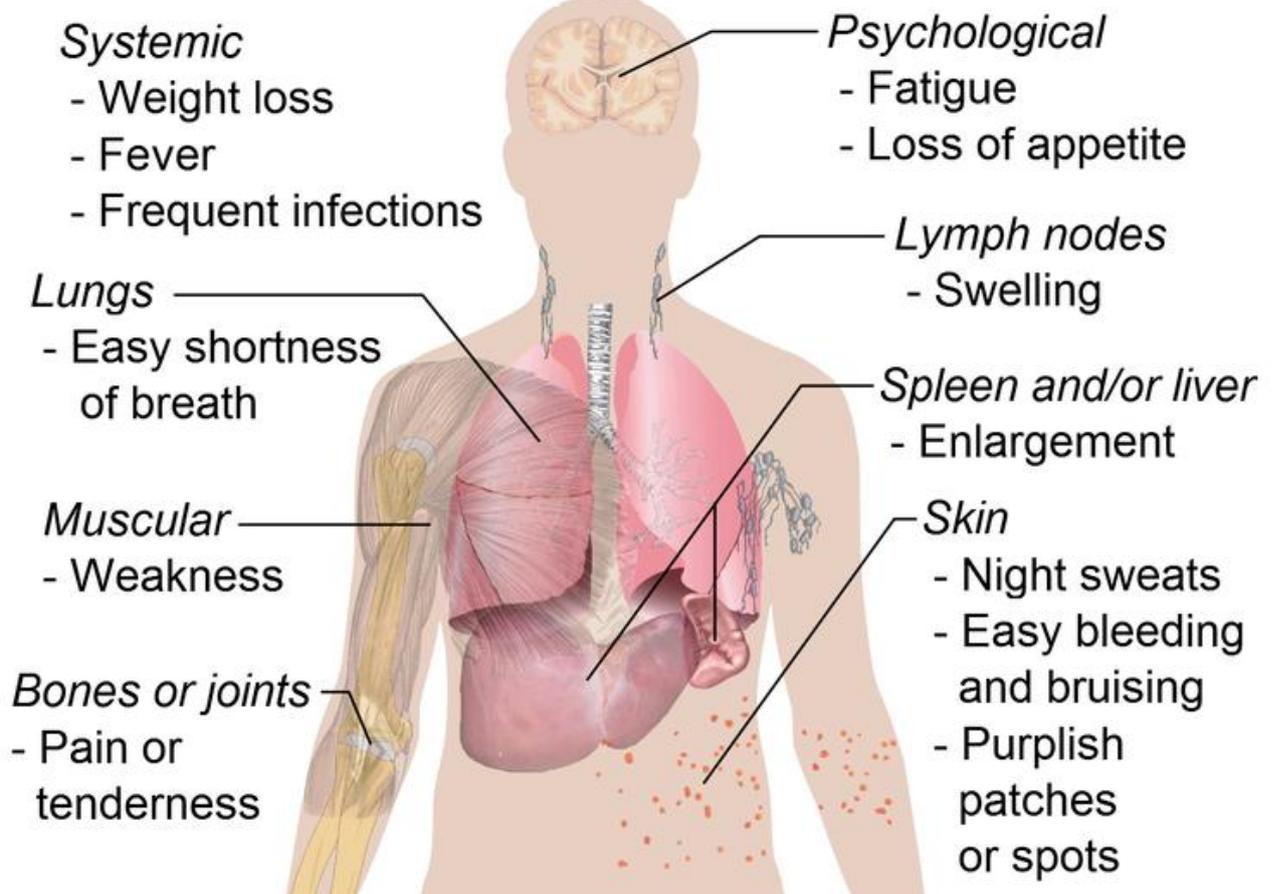
B. An electrolyte test is used to measure the levels of electrolytes in your blood. This is sometimes known as your electrolyte balance. Electrolytes are minerals that are found in the body. They have several functions, including:

There are three main electrolytes that can be measured with an electrolyte test: Sodium, Potassium, Chloride.

Raised or lowered levels of any of these electrolytes can have various possible causes.

1. A raised sodium level (hypernatremia) could be the result of	a. kidney failure. Certain medications can raise potassium, for example ACE inhibitors, which are used to treat heart failure and high blood pressure
2. A low sodium level (hyponatremia) is usually due to	b. dehydration, uncontrolled diabetes or persistent diarrhoea.
3. A raised potassium level (hyperkalemia) could be the results of	c. heavy sweating or persistent vomiting or diarrhoea. It can also be caused by certain medications.
4. A low potassium level (hypokalemia) could be the result of	d. certain types of medication, such as diuretics. Rarely, it could be due to a condition such as diabetes insipidus.

Common symptoms of
Leukemia



Source: http://en.wikipedia.org/wiki/File:Symptoms_of_leukemia.png

Now watch the following video and answer whether the following questions are True (T) or False (F). Video: <http://lingualeo.ru/jungle/96279>

1. All blood testing can be done without bleeding. _____
2. Myshkin Ingawale owns a company that creates high-tech bikes. _____
3. In the incident described in the video, both mother and child died during childbirth due to severe internal bleeding. _____
4. It is impossible to diagnose anemia in Mumbai. _____
5. The machine which runs blood samples, testing them also for anemia, is pretty much available in most big cities all around the world. _____
6. According to the video, ASHA workers in India are paid more than doctors.
7. The machine that Myshkin Ingawale has created measures hemoglobin, oxygen and pulse rate. _____
8. One of the main characteristics of this new machine is that it is based on a non-invasive technique. _____

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Πανεπιστήμιο Ιωαννίνων**

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Σημείωμα Αναφοράς

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