

CORPUSCULAR ELEMENTS OF BLOODS

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**ARTICLE
INFORMATION**

ABSTRACT:

ARTICLE HISTORY:

Received: 15.04.2026

Revised: 16.04.2026

Accepted: 17.04.2026

KEYWORDS:

*blood, formation
elements, erythrocyte,
leukocyte, platelet,
Rhesus negative, Rhesus
positive*

This article deals with the formation elements of blood and their composition. The main purpose of the study is to determine the function, structure, place of blood and its formation elements in human life and to study the Rhesus factor. The study is based on the biological and medical aspects of the importance of blood in the human body. The results obtained show that today's medicine has been highly standardized and studied in detail biologically. The results of the study have important practical significance in human life.

Introduction: After the invention of the microscope in the 22nd century, the study of blood and its formation elements began. Initially, Maximov studied the composition of blood and proved that it consists of connective tissue. I. A. Kassirsky described it as "blood is a mirror of the organism, in which various changes occurring in organs and tissues are reflected." Despite the fact that many studies have been conducted on the formed elements of blood, today there are still many unexplored aspects of this topic and scientists are studying them. The formed elements of blood include red blood cells - erythrocytes, white blood cells - leukocytes, and blood platelets - thrombocytes. Each of them performs a separate function.

Erythrocytes In humans and other mammals, they are highly differentiated elements that do not have a nucleus and cell organelles.

The cytoplasm of mature erythrocytes is filled with a special protein hemoglobin. In vertebrates and birds, erythrocytes contain a dense nucleus and microtubules. Second blood forms Leukocytes are divided into two large groups depending on the special granules in their cytoplasm: 1) granular leukocytes or granulocytes; 2) agranulocytes or agranulocytes. Blood platelets, along with erythrocytes and leukocytes, constitute the third type of formed elements of blood. Unlike leukocytes and erythrocytes, blood platelets are not true cells, but small (2-5 μm in size) fragments of the cytoplasm of giant megakaryocyte cells in the bone marrow. Although the term platelet is not quite accurate for human blood platelets, it is widely used in clinical practice.

Research methodology

The study is based on the study of the formed elements of blood, combined with biological and medical analysis methods. The history of blood development, the activity of its formed elements, their functions and significance in the body are formed as research materials.

The following steps are taken in the study of blood cell formation:

- First, the function of blood cell formation is studied
- Secondly, the amount of blood cell formation in the body is studied
- Thirdly, the consequences of their deficiency or excess in the body are studied.

Blood cell formation also performs the functions of protection, metabolism, and maintaining body balance in the body.

Erythrocytes are the most numerous blood cells. In healthy men, their number is 4.0-5.5 million ($4.0-5.5 \times 10^{12}/\text{l}$ in the international system of units) per 1 mm^2 of blood, and in women, it is 3.9-5.0 million ($3.9-5.0 \times 10^{12}/\text{l}$).

Under physiological conditions, the number of leukocytes in a healthy person is 3800-9000 ($3.8-9 \times 10^9/\text{l}$) per 1 mm^3 of blood. Platelets Under normal conditions, the number of platelets in a person's blood is 200,000 to 300,000

($200-300 \times 10^9/\text{l}$) per mm^3 of blood. A decrease in the number of erythrocytes is called erythrocytopenia, which is a characteristic sign of various anemias. An increase in the number of leukocytes is called leukocytosis, which is observed when various inflammatory processes occur in the body. A decrease in the number of platelets - thrombocytopenia - also occurs in various diseases.

Results: As a result of the study, the blood form elements were studied. In this case, each form element was analyzed separately. The erythrocyte membrane or plasma membrane is a

semipermeable membrane that provides active substance exchange between blood and tissues. The erythrocyte membrane contains glycoporphin glycoprotein, the sialic acid residues of which determine the negative charge of the erythrocyte surface. Glycophorins are found only in erythrocytes, they participate in determining the types of erythrocyte antigens (agglutinogens) in blood groups. Carbohydrate chains of membrane glycolipids and glycoproteins, together with glucuronic acid, form A and B agglutinogens in erythrocytes. They cause agglutination (sticking together) of erythrocytes under the influence of the corresponding proteins of the gamma-globulin fraction of blood plasma - alpha and beta-agglutinins. On the surface of erythrocytes there is also a Rhesus factor antigen (Rh). It is present in 86% of people (Rh+), and in 14% of people it is absent (Rh-). Currently, about 30 blood group systems have been identified. However, in clinical practice, the first thing to do when transfusing blood is to determine the AB0 system (four groups) and the Rh- factor (two groups - (Rh+) and (Rh-)). The protective function of leukocytes includes phagocytosis and absorption of foreign particles (antigens), the production of special proteins (antibodies) against them, and finally, the action on foreign cells and their killing. Microorganisms and foreign particles are digested by trichocytes (mainly neutrophils and monocytes) and then destroyed by hydrolytic enzymes (nonspecific or general immunity). In some cases, trichocytes are first digested, and as a result, hydrolytic enzymes released into the external environment participate in the decomposition of microorganisms. Leukocytes (mainly B-lymphocytes) participate in the production of antigens in response to the action of antigens that have entered the body (humoral immunity). Leukocytes (mainly T-lymphocytes) destroy foreign cells and provide elimination (cellular immunity). The platelet plasmolemma has a thick glycocalyx, which is also observed in pseudopodia and invaginations. Glycocalyx glycoproteins contain receptors involved in the adhesion and aggregation processes of platelets. The platelet cytoskeleton is well developed and consists of actin microfilaments and microtubule bundles. Cytoskeletal structures play an important role in maintaining the shape of platelets, forming barriers and invaginations, and in the processes of endocytosis and exocytosis. In addition, actin filaments participate in the contraction and retraction of the formed blood thrombus.

Analysis: Based on the results obtained, I can say that the blood formation elements are highly standardized, and their study and determination of their role in the body will further improve human health. It creates the possibility of preventing and treating diseases caused by their deficiency or excess. In addition, the deficiency or As a result of its increase, many

diseases or dangerous conditions can occur. By studying their still unexplored aspects, these diseases can be stopped.

Discussion: We have analyzed the various properties and functions of the formed elements of blood. An adult has an average of about 25 trillion erythrocytes. The number of erythrocytes can vary depending on age and physiological conditions. For example, in infants and people over 60 years of age, the number of erythrocytes can reach 6-6.5 million. In a rarefied atmosphere, during intense physical exertion, the number of erythrocytes can also increase. A persistent increase in the number of erythrocytes is called polycythemia and occurs in diseases of the blood system. All leukocytes are divided into two large groups depending on the special granules in their cytoplasm: 1) granular leukocytes or granulocytes; 2) agranulocytes or agranulocytes. Granulocytes are divided into neutrophils (leukocytes with granules that accept both acidic and alkaline dyes), eosinophils (leukocytes with granules that stain well with acidic dyes) and basophils (leukocytes with granules that stain with alkaline dyes). Agranulocytes are divided into two groups - lymphocytes and monocytes - depending on their origin, structure and functional characteristics. The plasmolemma of platelets has a thick glycocalyx, which is also observed in pseudopodia and invaginations.

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