



Significance of Red Blood Cells and White Blood Cells in Circulation

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DESCRIPTION

Red blood cells

Red blood cells are round, flat and indented at the center, like a doughnut without holes. Health care providers can check the size, shape, and health of red blood cells with a blood test. Hemoglobin is a protein in red blood cells. It carries oxygen. Red blood cells also remove carbon dioxide from the body and carry it to the lungs to exhale. Red blood cells are made in the bone marrow. They usually live about 120 days before dying.

Red blood cells (RBCs), also known as red blood cells (RBCs), red blood corpuscles (humans or other animals that do not have nuclei in red blood cells), haematids, erythroid cells or erythrocytes are the most common types of blood cells and blood flow through the circulatory system. The primary means of vertebrates to deliver red blood cells (O₂) to body tissues via red blood cells. RBC absorbs oxygen in the lungs and gills of fish and sends it to tissues while squeezing through the capillaries of the body.

The cytoplasm of red blood cells is rich in hemoglobin, an iron-containing biomolecule that can bind oxygen and cause the red color of cells and blood. Each human red blood cell contains approximately 270 million of these hemoglobin molecules. The cell membrane is composed of proteins and lipids, and this structure provides essential properties for physiological cell function, such as expandability and stability as it crosses the circulatory system, especially the capillary network.

Checking the number of red blood cells in the blood is usually part of a whole blood cell test. It can be used to check for symptoms such as anemia, dehydration, malnutrition and leukemia.

Iron-rich foods help maintain healthy red blood cells. Vitamins are also needed to make healthy red blood cells. These include vitamins B2, B12 and B3 found in foods such as eggs, whole grains and bananas. Folate also useful, found in fortified cereals, dried beans and lentils, orange juice and leafy vegetables.

In humans, mature red blood cells are flexible, oval, biconcave disks. They lack the nucleus and most organelles to provide maximum space for hemoglobin. They can be thought of as hemoglobin sacks, which have the plasma membrane as a sack. In adults, about 2.4 million new red blood cells are produced per second. Cells develop in the bone marrow, circulate in the body for about 100 to

120 days, and then their constituents are reused by macrophages. Each circulation takes about 60 seconds (1 minute).

About 84% of the cells of the human body are 20 to 30 trillion red blood cells. Almost half (40% to 45%) of blood volume is red blood cells. The number of red blood cells and the amount of hemoglobin vary from person to person and under conditions. For example, the number is higher in people living in the higher altitudes and people with polycythemia. At birth, the red blood cell count is high, it declines shortly after birth and gradually rises to adult levels during puberty.

White blood cells

White blood cells, also called leukocytes or leucocytes, are cells of the immune system that are involved in protecting the body from both infections and foreign invaders. All white blood cells are produced and derived from pluripotent cells of the bone marrow known as hematopoietic stem cells. White blood cells are found throughout the body, including the blood and lymphatic system.

All white blood cells have nuclei, which distinguishes them from the other blood cells, the anucleated red blood cells (RBCs) and platelets. Different white blood cells are classified in standard ways; two pairs of broadest categories classify them either by structure (granulocytes or agranulocytes) or by cell lineage (myeloid cells or lymphoid cells). These broadest categories can be further divided into the five main types: neutrophils, eosinophils (acidophiles), basophils, lymphocytes, and monocytes. These types are distinguished by their physical and functional characteristics. Monocytes and neutrophils are phagocytic. Lymphocytes can be further classified into B cells (named after spleen or bone marrow cells), T cells (named after thymocytes), and natural killer cells.

White blood cells are part of the body's immune system. They help the body fight infections and other illnesses. Checking the white blood cell count in the blood is usually part of a complete blood cell (CBC) test. It can be used to check for conditions such as infections, inflammation, allergies and leukemia.

White blood cells make up only about 1% of the blood, but their impact is big. They protect from illness and diseases. White blood cells are considered the body's immune cells. In a sense, they are always in a state of war. They flow through the bloodstream and fight viruses, bacteria, and other foreign invaders that threaten health. When the body suffers and a specific area is attacked, white

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blood cells rush in and destroy harmful substances, preventing illness. White blood cells are made in the bone marrow. They are stored in blood and lymphoid tissue. Some white blood cells, called neutrophils, have a short lifespan, that is, less than a day, so the bone marrow is always making them.

White blood cell counts can be low for several reasons. This

includes when the body destroys cells faster than it can replenish them, or when the bone marrow stops producing enough white blood cells to keep the body healthy. Low white blood cell counts increase the risk of illness and infections and can pose a serious health threat. Doctor may do a blood test to see if white blood cell count is normal. If the number is too low or too high, the person may have a white blood cell disorder.