



Complete Blood Count (CBC)

A [complete blood count](#) (CBC) gives important information about the kinds and numbers of cells in the blood, especially [red blood cells](#) , [white blood cells](#) , and [platelets](#). A CBC helps your doctor check any symptoms, such as [weakness](#), [fatigue](#), or bruising, you may have. A CBC also helps him or her diagnose conditions, such as [anemia](#), infection, and many other disorders.

A CBC test usually includes:

- **White blood cell (WBC, leukocyte) count.** White [blood cells](#) protect the body against infection. If an infection develops, white [blood cells](#) attack and destroy the bacteria, virus, or other organism causing it. White blood cells are bigger than red blood cells but fewer in number. When a person has a [bacterial infection](#), the number of white cells rises very quickly. The number of white blood cells is sometimes used to find an infection or to see how the body is dealing with [cancer treatment](#).
- **White blood cell types (WBC differential).** The major types of white blood cells are [neutrophils](#), lymphocytes, monocytes, eosinophils, and basophils. Immature neutrophils, called band neutrophils, are also part of this test. Each type of cell plays a different role in protecting the body. The numbers of each one of these types of white blood cells give important information about the [immune system](#). Too many or too few of the different types of white blood cells can help find an infection, an [allergic](#) or toxic reaction to medicines or chemicals, and many conditions, such as [leukemia](#).
- **Red blood cell (RBC) count.** Red blood cells carry oxygen from the [lungs](#) to the rest of the body. They also carry [carbon dioxide](#) back to the lungs so it can be exhaled. If the RBC count is low ([anemia](#)), the body may not be getting the oxygen it needs. If the count is too high (a condition called [polycythemia](#)), there is a chance that the red blood cells will clump together and block tiny blood vessels (capillaries). This also makes it hard for your red blood cells to carry oxygen.
- **Hematocrit (HCT, packed cell volume, PCV).** This test measures the amount of space (volume) red blood cells take up in the blood. The value is given as a percentage of red blood cells in a volume of blood. For example, a hematocrit of 38 means that 38% of the blood's volume is made of red blood cells. Hematocrit and [hemoglobin](#) values are the two major tests that show if [anemia](#) or polycythemia is present.
- **Hemoglobin (Hgb).** The hemoglobin molecule fills up the red blood cells. It carries oxygen and gives the blood cell its red color. The hemoglobin test measures the amount of hemoglobin in blood and is a good measure of the blood's ability to carry oxygen throughout the body.
- **Red blood cell indices.** There are three red blood cell indices: mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), and mean corpuscular hemoglobin concentration (MCHC). They are measured by a machine, and their values come from other measurements in a CBC. The MCV shows the size of the red blood cells. The MCH value is the amount of hemoglobin in an average red blood cell. The MCHC measures the concentration of hemoglobin in an average red blood cell. These numbers help in the diagnosis of different types of anemia. Red cell distribution width (RDW) can also be measured which shows if the cells are all the same or different sizes or shapes.
- **Platelet (thrombocyte) count.** Platelets (thrombocytes) are the smallest type of blood cell. They are important in blood clotting. When bleeding occurs, the platelets swell, clump together, and form a sticky plug that helps stop the bleeding. If there are too few platelets, uncontrolled bleeding may be a problem. If there are too many platelets, there is a chance of a [blood clot](#) forming in a blood vessel. Also, platelets may be involved in hardening of the [arteries](#) ([atherosclerosis](#) .
- **Mean platelet volume (MPV).** Mean platelet volume measures the average amount (volume) of platelets. Mean platelet volume is used along with platelet count to diagnose some diseases. If the platelet count is normal, the mean platelet volume can still be too high or too low.

Your doctor may order a blood smear test to be done at the same time as a CBC but it is not part of the regular CBC test. In this test, a drop of blood is spread (smeared) on a slide and stained with a special dye. The slide is looked at under a microscope. The number, size, and shape of red blood cells, white blood cells, and platelets are recorded. Blood cells with different shapes or sizes can help diagnose many blood diseases, such as [leukemia](#), [malaria](#), or [sickle cell disease](#).

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