

COMPLETE BLOOD COUNT

The sample CBC below shows that WBC and RBC are low.

<i>Complete Blood Count (CBC) with differential</i>			
Test Results	Result	Units	Reference Interval
White Blood Count	1.5 L	$\times 10^3/\text{mm}^3$	5.0-10.0
Red Blood Count	3.50 L	$\times 10^6/\text{mm}^3$	4.1-5.3
Hemoglobin	10.8 L	g/dL	12.0-18.0
Hematocrit	31.1 L	%	37.0-52.0
Platelets	302	$\times 10^3/\text{mm}^3$	150-400

Patient: What's CBC for?

Doctor: The complete blood count (CBC) is a common blood test that evaluates the three major types of cells in the blood: red blood cells, white blood cells, and platelets. The CBC can also test for loss of blood, abnormalities in the production or destruction of blood cells, acute and chronic infections, allergies, and problems with blood clotting.

Patient: Why do I need that doctor?

Doctor: CBC is ordered as part of a routine checkup, or if you're feeling more tired than usual, seems to have an infection, or has unexplained bruising or bleeding.

Patient: Can you tell me what Red Blood Cells are?

Doctor: The CBC's measurements of red blood cell (RBC) count, hemoglobin (the oxygen-carrying protein in RBCs), and mean (red) cell volume (MCV) provides information about the RBCs, which carry oxygen from the lungs to the rest of the body. These measurements are usually done to test for anemia, a common condition that occurs when the body has insufficient red blood cells.

Patient: What about White Blood Cells?

Doctor: The white blood cell (WBC) count measures the number of WBCs (also called leukocytes) in the blood. The WBC differential test measures the relative numbers of the different kinds of WBCs in the blood. WBCs, which help the body fight infection, are bigger than red blood cells and there are far fewer of them in the bloodstream. An abnormal WBC count may indicate an infection, inflammation, or other stress in the body. For example, a bacterial infection can cause the WBC count to increase, or decrease, dramatically.

Patient: What does platelet do?

Doctor: Platelets play an important role in blood clotting and the prevention of bleeding. When a blood vessel is damaged or cut, platelets clump together and plug the hole until the blood clots. If the platelet count is too low, a person can be in danger of bleeding in any part of the body.

Patient: How is CBC done?

Doctor: Not much blood is drawn in CBC. The blood is drawn from a vein. For an infant, the blood may be obtained by puncturing the heel with a small needle (lancet). If the blood is being drawn from a vein, the skin surface is cleaned with antiseptic, and an elastic band (tourniquet) is placed around the upper arm to

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apply pressure and cause the veins to swell with blood. A needle is inserted into a vein (usually in the arm inside of the elbow or on the back of the hand) and blood is withdrawn and collected in a vial or syringe. After the procedure, the elastic band is removed. Once the blood has been collected, the needle is removed and the area is covered with cotton or a bandage to stop the bleeding. Collecting blood for this test will only take a few minutes.

Patient: What should I expect after the test?

Doctor: Either method (heel sticking or vein withdrawal) of collecting a sample of blood is only temporarily uncomfortable and can feel like a quick pinprick. Afterward, there may be some mild bruising, which should go away in a few days.

Patient: How will I know the results?

Doctor: The blood sample will be processed by a machine. Parts of the CBC results can be available in minutes in an emergency, but more commonly the full test results come after a few hours or the next day.

If a CBC test points to anemia, infection, or other concerns, you may repeat the test just to be sure. If the second set of test results comes back the same, you will likely order further lab tests for you to determine what's causing the problem and how to treat it.

Patient: Are there any risks in doing this test?

Doctor: The CBC test is considered a safe procedure. However, as with many medical tests, there are some problems that can occur with having blood drawn, such as:

Fainting or feeling lightheaded

Hematoma (blood accumulating under the skin causing a lump or a bruise)

Pain associated with multiple punctures to locate a vein