TEST

CBC blood test

A CBC is a blood test that counts and describes red cells, white cells, and platelets.

WHAT IT MEASURES
Numbers and features of red cells, white cells, and platelets

SAMPLE
Blood

FASTING NEEDED?
No, unless other blood tests require it

HOW LONG IT TAKES
Usually less than 10 minutes

RESULTS IN
Often same day; timing varies by laboratory

USED FOR
Screening, diagnosis support, and monitoring

MAIN LIMITATION
Abnormal counts do not identify the cause

Overview

A complete blood count, or CBC, measures the main types of cells in your blood. It is also called a full blood count, or FBC, in some countries.

The test usually reports:

A CBC with differential also reports different types of white blood cells, such as neutrophils and lymphocytes. A basic CBC may report only the total white blood cell count.

A CBC can show that a count is higher or lower than expected, but it usually cannot explain why. Interpretation depends on your symptoms, medical history, medicines, previous results, and other tests.

- Red blood cells , which carry oxygen
- Hemoglobin , the oxygen-carrying protein inside red blood cells
- Hematocrit , the proportion of blood made up of red blood cells
- Red cell indices , which describe cell size and hemoglobin content

- White blood cells , which are involved in immune responses
- Platelets , which help blood clot

Why the test is ordered

A CBC may be ordered as part of a health assessment, before certain procedures, or to investigate tiredness, weakness, fever, frequent infections, unusual bruising, or bleeding.

It may support the assessment of:

Repeated CBCs can monitor known conditions, chemotherapy, or recovery after significant bleeding. A trend across several results is often more useful than one isolated number.

- Anemia
- Infection or inflammation
- Bleeding or clotting concerns
- Conditions affecting blood cell production
- The effects of medicines or treatments

Who should have the test

You may need a CBC if a healthcare professional is investigating symptoms, monitoring a condition or treatment, or preparing you for a procedure.

There is no single testing schedule for everyone. Whether a CBC is useful depends on your age, health, symptoms, medicines, pregnancy status, and previous results.

A CBC may be included in routine testing, but it does not screen for every illness. A normal result does not rule out all health problems.

How to prepare

You usually do not need to fast and can eat and drink normally. If other blood tests are being collected, follow their instructions because some glucose or lipid tests may require fasting.

Tell the person arranging the test about prescription medicines, nonprescription medicines, and supplements. Do not stop any medicine unless specifically advised.

Staying normally hydrated can make the blood draw easier and reduce changes caused by

dehydration. Avoid unusually strenuous exercise shortly before the test if it is intended to represent your usual blood counts.

What happens during the test

A healthcare worker usually takes blood from a vein in your arm. A band is placed around your upper arm, the skin is cleaned, and a small needle is inserted. Blood flows into a tube containing a substance that prevents clotting.

The appointment usually takes less than 10 minutes, and the needle is generally in place for less than a minute.

An automated laboratory machine counts and measures the cells. If it detects unusual cells or an unexpected pattern, laboratory staff may examine a blood smear under a microscope.

Understanding your results

Your report lists each measurement beside that laboratory's reference range. Being just outside a range does not automatically mean you have a medical condition.

Important measurements include:

Interpretation varies by laboratory, age, sex, pregnancy status, medicines, and clinical context. Children need age-specific ranges, and pregnancy changes expected blood counts.

Results should be compared with earlier tests when available. A stable result slightly outside the range may mean something different from a rapid change.

- Hemoglobin and hematocrit: Low results may occur with anemia, bleeding, increased body fluid, or other conditions. High results can occur with dehydration, reduced oxygen levels, or increased red cell production.
- Mean corpuscular volume, or MCV: This describes average red blood cell size and can help narrow down causes of anemia.
- White blood cell count: High or low counts can result from infection, inflammation, medicines, stress, or bone marrow conditions.
- Platelet count: A low count may increase bleeding concerns in some situations. A high count may be temporary or related to an underlying condition.

What affects the results

Factors that can alter CBC results include:

If a result is unexpected, repeating the CBC after a temporary factor has resolved may be more useful than interpreting it alone.

- Hydration: Dehydration can make counts appear higher, while large amounts of fluid or intravenous fluids can dilute them.
- Exercise: Strenuous activity can temporarily raise white blood cells and alter other measurements.
- Pregnancy: Increased blood fluid can lower measured hemoglobin and hematocrit.
- Altitude and smoking: Both can affect red blood cell and hemoglobin levels.
- Age and sex: Expected results vary across life stages and reference populations.
- Bleeding or menstruation: Blood loss can lower red cell measurements, although changes may not be immediate.
- Medicines: Corticosteroids like prednisone or hydrocortisone can increase some white cell counts. Chemotherapy and other medicines can reduce blood cell production.
- Transfusion: Donated cells can change counts and red cell indices.
- Illness or stress: Infection, inflammation, surgery, pain, and physical stress can temporarily change counts.
- Sample problems: Platelets may clump in the tube, causing a falsely low count. A clotted, delayed, or poorly stored sample can also mislead.

Accuracy and limitations

Automated CBC machines are generally reliable, and laboratories use quality checks. Unexpected findings may be reviewed manually.

However, natural variation, exercise, dehydration, pregnancy, temporary infection, platelet clumping, or an unsuitable reference range can produce an abnormal result without ongoing disease.

A CBC can also miss health problems. Early iron deficiency may occur before hemoglobin falls, and some infections, cancers, nutritional deficiencies, and bleeding disorders can occur with normal counts.

The test usually does not identify the cause of an abnormality. Follow-up may include a blood smear, reticulocyte count, iron studies, vitamin tests, infection testing, specialist assessment, or occasionally bone marrow testing.

There is no single useful false-alarm or miss rate because a CBC contains several measurements used for many purposes.

Risks and complications

A blood draw may cause brief discomfort, a small bruise, or minor bleeding at the needle site. Some people feel faint during or shortly after the procedure.

What happens next

Results may be available the same day, although timing varies. They may be released electronically before review by a healthcare professional.

A mildly abnormal result without concerning symptoms may lead to review of previous results and medicines or a repeat test after a temporary illness has passed. More marked or changing abnormalities may require additional blood tests or a blood smear. Urgency depends on the affected cell type, degree of change, symptoms, and medical history.

Seek urgent medical advice if an abnormal result occurs with significant bleeding, rapidly worsening weakness, or shortness of breath. Call emergency services for severe difficulty breathing, chest pain, fainting, new confusion, or bleeding that will not stop. These symptoms require assessment based on how you feel, not just the CBC number.

Common questions

Can I drink coffee before a CBC?

Usually, yes. A CBC does not normally require fasting. If other tests are being collected, follow their instructions; black coffee may not be allowed during a requested fast.

Does the time of day matter?

It can have a small effect on some counts, but a CBC can usually be collected at any time. For monitoring, similar timing and testing conditions may make trends easier to compare.

Can I exercise before the test?

Light activity is unlikely to matter. Strenuous exercise can temporarily alter results, so avoid an unusually hard workout beforehand when practical.

Can I have a CBC during my period?

Yes. Menstruation does not prevent testing, but blood loss may affect red blood cell measurements. Mention unusually heavy bleeding.

How quickly will I get my results?

Many laboratories report a CBC the same day. It may take longer because of transport, workload, blood-smear review, or local release procedures.

Does an abnormal CBC mean cancer?

No. Possible causes include temporary infections, medicines, nutritional deficiencies, inflammation, bleeding, and sample problems. A CBC alone cannot diagnose cancer.

Sources

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