TEST

Hematocrit

A hematocrit test measures how much of your blood consists of red blood cells.

WHAT IT MEASURES
Proportion of blood made up of red blood cells

SAMPLE
Blood

FASTING NEEDED?
No, unless other ordered tests require fasting

HOW LONG IT TAKES
Usually less than five minutes

RESULTS IN
Hours to one day, depending on laboratory turnaround

USED FOR
Screening, diagnosis, and monitoring

MAIN LIMITATION
Hydration changes can make results misleading

Overview

A hematocrit test measures the proportion of your blood that is made up of red blood cells. The result is usually reported as a percentage or as litres of red cells per litre of blood.

Red blood cells carry oxygen from your lungs to your tissues. Hematocrit therefore helps assess whether you may have too few or too many red blood cells. It does not show how well those cells work or explain why the result is abnormal.

Hematocrit is usually included in a complete blood count, or CBC. A CBC also measures haemoglobin, white blood cells, platelets, and features such as red blood cell size.

Most laboratories calculate hematocrit from the red blood cell count and average cell size. Some settings measure it by spinning a small tube of blood so the cells pack together.

Why the test is ordered

Hematocrit may be ordered as part of a general health assessment or when there is a reason to check your blood cells.

It can help:

A hematocrit result cannot identify the cause by itself. Your haemoglobin, other CBC results, symptoms, medical history, and sometimes further tests are needed.

- Look for evidence of anaemia, meaning too few healthy red blood cells
- Investigate tiredness, weakness, breathlessness, dizziness, or pale skin
- Assess a high red blood cell concentration
- Check the effects of bleeding, dehydration, or excess body fluid
- Monitor a blood disorder or treatment affecting blood cell production
- Follow recovery after surgery, illness, transfusion, or blood loss

Who should have the test

You may have a hematocrit test when a clinician orders a CBC. This may happen during a routine check, before some procedures, during pregnancy, or while monitoring a condition or medicine.

Testing may also be appropriate if you have symptoms that could be related to anaemia, bleeding, dehydration, or an increased red blood cell concentration. These symptoms have many possible causes, so the test is used to gather information rather than make a diagnosis on its own.

There is no single schedule that is right for everyone. Whether you need repeat testing depends on your result, symptoms, health conditions, medicines, and previous blood counts.

How to prepare

No fasting is needed for a hematocrit test by itself. If other blood tests are being collected at the same time, follow the instructions provided for those tests. Some may require you to have only water beforehand.

Drink your usual amount of fluid unless you have been told to limit fluids. Both dehydration and unusually heavy fluid intake can affect the result.

Tell the person ordering the test about your medicines and supplements. Do not stop a prescribed medicine solely because you are having a hematocrit test.

Strenuous exercise shortly before the blood draw can temporarily change the concentration of blood cells. If the test is being repeated to follow a trend, having it under similar conditions can

make the comparison more useful.

What happens during the test

A healthcare professional usually collects blood from a vein in your arm. They clean the skin, place a band around your upper arm, and insert a small needle into a vein. The blood flows into one or more tubes.

You may feel a brief sting or pressure. The blood draw itself usually takes less than five minutes.

In babies, young children, or some point-of-care settings, blood may be collected from a heel or fingertip. Results from a small capillary sample may differ slightly from results from a vein.

Understanding your results

Your report will show your hematocrit and the laboratory's reference range. Reference ranges vary by laboratory and testing method. Interpretation also varies with age, sex, pregnancy status, altitude, medicines, hydration, and clinical context.

A low hematocrit means red blood cells make up a smaller-than-expected proportion of your blood. Possible explanations include blood loss, iron deficiency, vitamin deficiency, reduced blood cell production, increased destruction of red cells, pregnancy-related blood dilution, kidney disease, or excess body fluid.

A high hematocrit means red blood cells make up a larger-than-expected proportion. This may reflect dehydration, living at high altitude, smoking, reduced oxygen levels, medicines that stimulate red blood cell production, or a bone marrow condition.

An abnormal result does not confirm any one cause. A mildly flagged result may be temporary or appropriate for your circumstances. Trends over time are often more informative than one isolated measurement.

What affects the results

Hematocrit is strongly influenced by the balance between blood cells and the liquid part of blood, called plasma. This means the number can change even when your total red blood cell mass has not changed.

Important influences include:

Laboratory interference is uncommon but possible. Clumped red blood cells, unusually shaped cells, or a very high white blood cell count can affect automated calculations. The laboratory may check the sample another way when results do not fit together.

- Dehydration: Vomiting, diarrhoea, heavy sweating, or limited fluid intake can concentrate the blood and raise hematocrit.
- Extra body fluid: Intravenous fluids, pregnancy, or fluid retention can dilute the blood and lower hematocrit.
- Recent bleeding: Hematocrit may initially look normal after sudden blood loss because cells and plasma are lost together. It may fall later as fluid shifts occur.
- Recent transfusion: Donor red cells can change the result and may make it harder to assess your own blood cell production.
- Exercise: Strenuous recent exercise can temporarily reduce plasma volume and raise the result. Regular endurance training can have different longer-term effects.
- Altitude and smoking: Both can increase red blood cell production in response to lower oxygen availability.
- Medicines: Testosterone, erythropoietin-type medicines, chemotherapy, and some other treatments can affect red blood cell production.
- Posture and collection technique: Moving from lying down to standing, prolonged tourniquet use, or collecting blood near an intravenous fluid line can shift the result.
- Age, sex, and pregnancy: Expected results differ across life stages and during pregnancy.

Accuracy and limitations

Hematocrit accurately describes the proportion of blood occupied by red blood cells at the time the sample is taken. It is less reliable as a stand-alone test for deciding why that proportion is high or low.

There is no single rate for how often hematocrit misses a condition or gives a misleading positive result. That depends on the condition, the cut-off used, and factors such as hydration. Dehydration can suggest an increased red cell concentration when total red cell mass is not increased. It can also hide anaemia by making the blood appear more concentrated.

Hematocrit can remain normal early in sudden blood loss, so a normal first result does not always rule out significant bleeding. Early iron deficiency can also be present before hematocrit falls.

Haemoglobin and the rest of the CBC are generally interpreted alongside hematocrit.

Depending on the question, more useful tests may include iron studies, vitamin B12 or folate levels, kidney tests, a blood film examined under a microscope, or tests for increased red blood cell production.

Risks and complications

A blood draw may cause a small bruise, brief soreness, or light-headedness. Serious complications from routine blood collection are uncommon.

What happens next

If your result is within the laboratory's range and fits your circumstances, no specific follow-up may be needed. If it is mildly abnormal, the test may be repeated, especially if hydration, exercise, illness, or collection conditions could have influenced it.

Further testing is guided by whether the hematocrit is low or high and by the other CBC measurements. A single abnormal result usually needs context rather than immediate treatment.

Arrange routine follow-up if you have an unexplained abnormal result, ongoing tiredness, reduced exercise tolerance, recurrent headaches, or other persistent symptoms.

Seek urgent medical help for chest pain, severe difficulty breathing, fainting, new weakness on one side, difficulty speaking, or heavy or uncontrolled bleeding. These symptoms require assessment regardless of the hematocrit result.

Common questions

Can I drink coffee before a hematocrit test?

Fasting is not required for hematocrit alone, so coffee is generally allowed. If you are also having fasting blood tests, follow those instructions; you may be asked to drink only water.

Does the time of day matter?

Hematocrit can shift slightly with hydration, posture, meals, and activity. There is usually no required testing time, but repeat tests are easier to compare when collected under similar conditions.

Can I exercise before the test?

Gentle activity is unlikely to matter. Strenuous exercise shortly beforehand can temporarily

concentrate the blood, so avoiding it may give a result that better reflects your usual level.

Is hematocrit the same as haemoglobin?

No. Hematocrit is the proportion of blood made up of red cells. Haemoglobin is the oxygen-carrying protein inside those cells. The values are related but are not interchangeable.

Can dehydration cause a high result?

Yes. Dehydration reduces the liquid portion of blood, making red blood cells account for a larger proportion. A repeat result after usual hydration may be helpful when clinically appropriate.

Why was my hematocrit repeated?

A repeat test can confirm an unexpected result, check whether a temporary influence has resolved, or monitor a trend. It may also be repeated if the first sample was affected by clotting, dilution, or another collection problem.

Sources

- MedlinePlus Medical Test: Hematocrit Test , US National Library of Medicine
- National Heart, Lung, and Blood Institute: Blood Tests , US National Institutes of Health
- Merck Manual Professional Edition: Evaluation of Anemia , reviewed by Ashkan Emadi
- Tefferi A, Hanson CA, Inwards DJ. How to Interpret and Pursue an Abnormal Complete Blood Cell Count in Adults , Mayo Clinic Proceedings , 2005
- Simundic AM and colleagues. Joint EFLM-COLABIOCLI Recommendation for Venous Blood Sampling , Clinical Chemistry and Laboratory Medicine , 2018