TEST

RBC urine test

An RBC urine test checks a urine sample for red blood cells.

WHAT IT MEASURES
Red blood cells in a urine sample

SAMPLE
Urine

FASTING NEEDED?
No

HOW LONG IT TAKES
About 5 to 10 minutes

RESULTS IN
Often same day; turnaround varies by laboratory

USED FOR
Diagnosis and monitoring of blood in urine

MAIN LIMITATION
Dipsticks detect blood pigment, not red cells specifically

Overview

An RBC urine test looks for red blood cells in urine. RBC stands for red blood cell. These cells normally carry oxygen through your bloodstream.

The test is usually part of a urinalysis , which checks the appearance, concentration, and contents of urine. A laboratory may count red blood cells under a microscope and report the number seen in each high-power field, written as RBC/HPF.

Blood that can only be detected by testing is called microscopic hematuria . Blood that makes urine look pink, red, or brown is called visible hematuria . Urine can also change colour for reasons unrelated to blood, including certain foods and medicines.

A urine dipstick may be used first. It reacts to the pigment in blood but does not prove that intact red blood cells are present. A positive dipstick is usually checked with urine microscopy.

Why the test is ordered

The test helps find out whether blood is entering the urine from the kidneys or another part of

the urinary tract. The urinary tract includes the kidneys, ureters, bladder, and urethra.

It may be ordered because:

Red blood cells may appear in urine for many reasons. These include urinary infections, kidney stones, kidney inflammation, recent strenuous exercise, injury, or bleeding from the prostate or urinary tract. Menstrual blood can also enter the sample.

Sometimes the finding needs further assessment for a growth in the urinary tract, especially when blood persists or risk factors are present. An RBC result alone cannot identify the cause.

- Your urine looks pink, red, or brown
- You have pain or burning when urinating
- You need to urinate more often than usual
- You have pain in your side, back, lower abdomen, or groin
- A urine dipstick found possible blood
- Another urine test found protein or abnormal cells
- A known kidney or urinary condition needs monitoring

Who should have the test

You may need this test if you have visible blood in your urine, urinary symptoms, or an abnormal dipstick result. It may also be included in testing for kidney disease, high blood pressure, diabetes, pregnancy complications, or certain autoimmune conditions.

Routine urine testing is sometimes performed before procedures or during health assessments. However, urine RBC testing is not a stand-alone screening test for every healthy adult.

Children and pregnant people may also have the test, but the likely causes and follow-up can differ. Results should be interpreted using your age, sex, pregnancy status, symptoms, medicines, and medical history.

How to prepare

Fasting is not needed. Eat and drink normally unless you have separate instructions for another test.

Avoid drinking an unusually large amount of water immediately beforehand. Very diluted urine can make small numbers of red blood cells harder to detect. Do not deliberately restrict fluids

either.

Tell the healthcare professional arranging the test if:

Do not stop prescribed medicines unless the clinician responsible for them tells you to.

You will usually be asked for a clean-catch, midstream sample . Wash your hands, clean around the urinary opening as instructed, begin urinating into the toilet, and then collect urine in the sterile container without touching its inside.

- You are menstruating or have other vaginal bleeding
- You recently did strenuous exercise
- You recently had a urinary catheter, procedure, injury, or surgery
- You take blood thinners or other medicines
- You are taking vitamin C supplements

What happens during the test

You provide a small urine sample in a private bathroom. Collecting it usually takes only a few minutes.

The laboratory may test the urine with a chemical strip. If the strip reacts to blood, the sample may be examined under a microscope to confirm whether red blood cells are present.

Microscopy can also show white blood cells, crystals, bacteria, and casts. Casts are tiny tube-shaped structures formed inside the kidneys. Their presence can help indicate where an abnormality may be coming from.

If you cannot pass urine normally, a catheter may occasionally be needed. This is not part of routine urine RBC testing.

Understanding your results

Results may be reported as:

A small number of red blood cells may fall within a laboratory's reference range. The American Urological Association defines microscopic hematuria in adults as more than three RBCs per high-power field in one properly collected sample, but this threshold does not explain the cause or determine the same follow-up for everyone.

Ranges and interpretation vary by laboratory, age, sex, pregnancy status, medicines, collection method, and clinical context. Your result should be considered alongside symptoms and other

findings, such as urine protein, white blood cells, kidney function, and urine culture results.

A positive dipstick with few or no red blood cells on microscopy may mean the strip detected free haemoglobin from broken blood cells or myoglobin from muscle. Myoglobin is a protein released when muscle is injured.

A normal result does not always rule out bleeding because blood may enter urine intermittently.

- No red blood cells seen
- A number of RBCs per high-power field
- A category such as negative, trace, small, moderate, or large
- A dipstick blood result followed by microscopy findings

What affects the results

Several factors can change the result even when the laboratory has performed the test correctly.

Menstrual or other vaginal blood may enter the container. Blood can also be introduced after recent sexual activity, urinary catheter placement, or a urinary procedure.

Strenuous exercise can temporarily cause blood in urine. If the test is intended to check a previous unexpected result, you may be asked to avoid vigorous exercise before repeating it.

Very dilute urine can cause red blood cells to break apart before microscopy. Delayed testing may also allow cells to deteriorate, particularly if the sample is warm, dilute, or alkaline. Samples should therefore be delivered and stored as instructed.

A dipstick can react to haemoglobin or myoglobin even when intact red blood cells are absent. Cleaning chemicals that contaminate the container may also produce a misleading positive result.

Large amounts of vitamin C can interfere with some dipsticks and contribute to a negative result despite blood being present. Highly concentrated or acidic urine may also affect strip performance.

Blood-thinning medicines can make bleeding more noticeable, but blood in urine should not automatically be blamed on the medicine. The underlying source may still need assessment.

Beetroot, food colouring, and some medicines can make urine look red or brown without adding red blood cells. Microscopy helps separate colour changes from true hematuria.

Accuracy and limitations

Urine microscopy is better than a dipstick for confirming that red blood cells are actually present. A dipstick is quick, but it cannot reliably distinguish intact red cells from haemoglobin or myoglobin.

The test can miss blood when bleeding is intermittent, the urine is very dilute, red cells have broken down, or the sample is collected after the bleeding has stopped. Dipstick interference, including from vitamin C, can also produce a negative result when blood is present.

The test can suggest blood when the sample is contaminated by menstrual bleeding or when a dipstick reacts to muscle pigment rather than red blood cells. For this reason, an unexpected result may be repeated with a carefully collected sample.

An RBC urine test cannot show exactly where bleeding comes from or what caused it. Depending on the findings, more useful tests may include a urine culture, urine protein measurement, blood tests for kidney function, imaging, or cystoscopy. Cystoscopy uses a thin camera to examine the bladder.

Risks and complications

Providing a urine sample has no significant physical risk. The main practical issue is contamination, which may lead to an unclear result or the need for another sample.

If a catheter is required, it can cause temporary discomfort and carries a small risk of urinary infection.

What happens next

If the result is normal and you have no ongoing symptoms, no further testing may be needed.

An unexpected positive result is often confirmed with microscopy or a repeat clean-catch sample. A temporary factor, such as menstruation, vigorous exercise, or a recent procedure, may need to pass before retesting.

If an infection is suspected, a urine culture may be performed. After treatment, another urine test may be used to check whether the blood has cleared. Persistent blood, visible blood, protein in urine, abnormal kidney function, or other risk factors may lead to imaging or referral to a kidney or urinary specialist.

Arrange routine medical follow-up for an unexpected positive result, even if you feel well. Seek

prompt medical advice for visible blood in urine.

Seek urgent care if blood is accompanied by an inability to urinate, blood clots blocking urine flow, severe side or abdominal pain, fever with feeling very unwell, fainting, or heavy ongoing bleeding.

Common questions

Can I drink coffee before an RBC urine test?

Usually, yes. Fasting is not required. Coffee may make you urinate more often, so water may be more practical if you need to provide a sample soon. Follow separate instructions if other tests are being done.

Does the time of day matter?

A first-morning sample is often more concentrated and may make small abnormalities easier to detect. However, a sample collected at another time can still be useful. Follow the collection instructions you receive.

Can I exercise beforehand?

Light activity is unlikely to matter. Strenuous or prolonged exercise can temporarily cause red blood cells in urine, so mention recent exercise. You may be asked to avoid it before a repeat test.

Can I take the test during my period?

Menstrual blood can contaminate the sample. If the test is not urgent, it may be better to collect it after bleeding has stopped. If it must be done, tell the person arranging the test.

Does a positive result mean cancer?

No. Blood in urine has many possible causes, including infection, stones, exercise, kidney conditions, and sample contamination. The result shows that further interpretation may be needed; it does not diagnose cancer.

Why was my dipstick positive but microscopy normal?

The strip may have detected haemoglobin from broken red cells or myoglobin from muscle rather than intact red blood cells. Dilute urine, delayed analysis, exercise, or contamination can also explain the difference.

Sources

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