TEST

Urine protein dipstick test

A urine protein dipstick is a quick test for protein, mainly albumin, in urine.

WHAT IT MEASURES
Mainly albumin protein in urine

SAMPLE
Urine

FASTING NEEDED?
No

HOW LONG IT TAKES
About five minutes

RESULTS IN
Minutes to one day, based on testing location

USED FOR
Screening and initial detection of protein in urine

MAIN LIMITATION
Misses small albumin amounts and many non-albumin proteins

Overview

A urine protein dipstick is a quick screening test for protein in your urine. It is usually part of a broader urinalysis, which may also check for blood, glucose, signs of infection, and other substances.

The dipstick is a chemically treated strip. When it is placed in urine, one section changes colour if protein is present. The result is usually reported as negative, trace, or one or more plus signs.

The test mainly detects albumin. Albumin is a protein that normally stays in the bloodstream. Healthy kidneys allow very little albumin to pass into urine.

A positive result does not by itself mean that you have kidney disease. Exercise, dehydration, infection, pregnancy, and contamination can affect the result. A positive dipstick often needs to be repeated or checked with a more precise laboratory test.

Why the test is ordered

The test may be ordered to look for possible kidney damage or to investigate an unexpected

finding during a routine urine test.

It can help with:

Foamy urine can occur when urine contains protein, but it can also happen for harmless reasons, such as a fast urine stream. The dipstick result must be considered alongside your symptoms, medical history, blood pressure, and other tests.

- Screening people who have a higher risk of kidney disease
- Investigating swelling, high blood pressure, or changes in urine
- Checking urine during pregnancy
- Assessing an acute illness that may affect the kidneys
- Following up a previous urine result

Who should have the test

A healthcare professional may recommend urine protein testing if you have diabetes, high blood pressure, known kidney disease, or another condition that can affect the kidneys.

It may also be used if blood tests show reduced kidney function, or if you have swelling around the legs, feet, or eyes. These findings have several possible causes and do not confirm protein loss from the kidneys.

Urine is commonly checked during pregnancy. Protein in urine, when combined with high blood pressure or certain symptoms, may require assessment for pre-eclampsia. A dipstick result alone is not enough to make that diagnosis.

Routine kidney screening is not the same for everyone. Whether testing is useful depends on your age, health conditions, pregnancy status, medicines, and previous results.

How to prepare

You do not usually need to fast. You can eat, drink water, and take your usual medicines unless you have been given different instructions for another test being performed at the same time.

Avoid unusually strenuous exercise before the sample if possible. Hard exercise can temporarily increase urine protein.

Tell the person arranging the test if you are menstruating, have vaginal bleeding or discharge, have symptoms of a urinary infection, or recently completed intense exercise. These details can help with interpretation.

If you are collecting the sample at home, use the supplied container. Do not collect urine in a household jar because soap, disinfectant, or other residue may affect testing.

What happens during the test

You will usually be asked to provide a clean-catch, midstream urine sample.

First wash your hands and clean around the urine opening if instructed. Begin urinating into the toilet, then collect some urine in the container without touching its inside. Finish urinating into the toilet.

A strip is dipped into the sample. The colour is compared with a chart or read by a machine after a set amount of time.

In some settings, you may be asked for your first urine after waking. A first-morning sample is usually more concentrated and is less affected by exercise or being upright during the day.

Understanding your results

Results are commonly described as negative, trace, 1+, 2+, 3+, or 4+. The exact meaning of each category depends on the dipstick brand and testing method.

A negative result means the strip did not detect protein above its threshold. It does not rule out small amounts of albumin or proteins that the strip does not detect well.

A trace or positive result may be temporary. It may be related to concentrated urine, exercise, fever, infection, or contamination. Persistent protein is more important than one isolated result.

A positive result is often followed by an albumin-to-creatinine ratio, known as an ACR. This laboratory test compares urine albumin with creatinine, a waste product, to account partly for how dilute or concentrated the urine is. A protein-to-creatinine ratio, or PCR, may be used when a wider range of urine proteins needs to be measured.

There is no single dipstick reference range that applies in every situation. Ranges and interpretation vary by laboratory, age, sex, pregnancy status, medicines, and clinical context.

What affects the results

Several factors can change the result even when the strip and laboratory process are working correctly.

Cleaning chemicals in the container can also interfere with the strip. This is why a proper sterile or clean specimen container matters.

- Hydration: Dehydration produces concentrated urine, making a positive result more likely. Very dilute urine can hide protein.
- Recent exercise: Vigorous activity may temporarily increase protein in urine.
- Fever or acute illness: Protein can appear temporarily during infections or other short-term illnesses.
- Urinary infection: Inflammation, blood, and white blood cells can contribute to a positive result.
- Menstruation or vaginal discharge: Blood or secretions can contaminate the sample.
- Semen: Semen in the sample may increase the measured protein.
- Pregnancy: Pregnancy changes kidney function, and protein must be interpreted with blood pressure and other findings.
- Time of day and posture: Some younger people pass protein after being upright but not in a first-morning sample. This is called orthostatic proteinuria.
- Urine acidity: Very alkaline urine can produce a misleading positive result with some strips.
- Medicines and dyes: Some medicines change urine colour or affect kidney function. Tell the healthcare professional interpreting the test what you take.

Accuracy and limitations

A dipstick is useful for quick screening, but it is not a precise measurement of total protein loss.

It mainly detects albumin. It can miss early, low-level albumin loss and may not detect other proteins well. For example, certain abnormal proteins produced in plasma-cell disorders may be present even when a standard dipstick is negative. Different urine and blood tests are better when these proteins are suspected.

The test can say protein is present when there is no persistent kidney problem. Concentrated or highly alkaline urine, blood, infection, and contamination can all produce a positive or misleading result.

It can also say protein is absent when protein is present. This is more likely with dilute urine, small amounts of albumin, or proteins other than albumin.

There is no single figure for how often a dipstick misses protein or gives a misleading positive

result. Accuracy changes with the strip brand, urine concentration, type of protein, and threshold being used. A laboratory ACR is generally better for detecting and monitoring small amounts of albumin.

Risks and complications

Providing a urine sample is painless and has no significant physical risk. The main difficulty is obtaining a clean sample without contamination.

What happens next

A negative result may need no further action if the test was routine and there are no other concerns.

A trace or positive result is often repeated, especially if you recently exercised, were unwell, were dehydrated, or may have contaminated the sample. A first-morning sample may be requested.

Further assessment may include an ACR or PCR, blood tests for kidney function, blood pressure measurement, and testing for blood or infection in the urine. Persistent results are interpreted alongside your health history and previous measurements.

Contact a healthcare professional promptly if you have a positive result with visible blood in your urine, much less urine than usual, worsening swelling, or symptoms of a urinary infection.

During pregnancy, seek urgent medical advice if protein in urine occurs with high blood pressure, a severe headache, vision changes, pain under the ribs, sudden swelling, or feeling seriously unwell. Severe breathing difficulty, collapse, or confusion requires emergency care.

Common questions

Can I drink coffee before a urine protein test?

Usually, yes. Fasting is not required. However, follow any separate instructions if other tests are being done at the same visit.

Does the time of day matter?

It can. A first-morning sample is often preferred for follow-up because it is less affected by exercise, fluid intake, and being upright.

Can I exercise beforehand?

Light normal activity is unlikely to matter. Avoid unusually strenuous exercise before the test because it can temporarily increase urine protein.

Can I do the test during my period?

You may be able to, but menstrual blood can contaminate the sample. If the test is not urgent, you may be asked to provide it after bleeding has stopped.

Does a positive dipstick mean I have kidney disease?

No. A single positive result can have temporary or non-kidney causes. Repeat testing and a laboratory ACR or PCR are often needed.

Can I use a home urine dipstick?

Home strips can provide a screening result, but timing, storage, lighting, and urine concentration affect the colour reading. An unexpected result should be confirmed using a properly collected sample and an appropriate laboratory test.

Sources

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- UK Kidney Association. The UK eCKD Guide: Albuminuria and proteinuria