

URINE PROTEIN (MICROALBUMINURIA/PROTEINURIA) TEST

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What is a urine protein (albumin) test?

Urine Protein (Microalbuminuria/Proteinuria) Test

Why might this test be ordered?

What is a urine protein (albumin) test?

What is the difference between microalbuminuria and proteinuria?

A urine protein test is a screening test to look for the presence of proteins in the urine. One of these proteins is called albumin.

What are the signs of microalbuminuria/proteinuria?

Why might this test be ordered?

Proteins are the “building blocks” of the body that also perform other vital functions such as nourishing tissues; transporting hormones, vitamins, and other essential nutrients; and keeping the proper amount of fluids circulating through the body. When the kidneys are healthy, virtually no proteins pass out of the kidneys and into the urine (only waste products circulating in the blood are removed). However, if a person’s kidneys become diseased or damaged, they are less able to leave the proteins behind, and some proteins begin to filter through and appear in the urine.

Who is at risk for the development of microalbuminuria/proteinuria?

What is the difference between microalbuminuria and proteinuria?

Albumin is a type of protein found in large amounts in the blood. Because it is a small molecule in size, it is one of the first proteins able to pass through the kidneys into the urine when there are kidney problems. This presence of small amounts of albumin in the urine is the condition called microalbuminuria. As kidney damage progresses and the amount of albumin in the urine increases, the name of the condition changes from microalbuminuria to albuminuria or proteinuria.

How is the urine tested for microalbuminuria/proteinuria?

What do the test results mean?

What are the signs of microalbuminuria/proteinuria?

In its early stages, there may be no noticeable signs or symptoms. As kidney function declines and large amounts of proteins are passing into



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the urine, swelling of the hands, feet, abdomen and face may occur. If albuminuria progresses, it may result in permanent kidney damage. In some patients, it might result in the need for dialysis or a kidney transplant. With or without symptoms, the only way to find out how much protein is passing into the urine is to test it.

Proteinuria is also associated with cardiovascular disease. Damaged blood vessels can lead to stroke and heart failure in addition to kidney disease.

Who is at risk for the development of microalbuminuria/proteinuria?

People with certain chronic diseases -- including diabetes, hypertension, and other forms of kidney diseases -- are at risk for developing microalbuminuria/proteinuria. Other at-risk groups include older people, overweight people, and people with a family history of kidney disease.

How is the urine tested for microalbuminuria/proteinuria?

You will be asked to give a urine sample. Your doctor will decide if the sample can be a random sample provided at your doctor's office or needs to be a sample collected over a certain time frame (such as over 4 hours, overnight, or for 24 hours). In either case, you will be given a container and instructions for properly collecting a urine sample. The sample will then be tested to determine the amounts of protein or albumin in it. Your doctor may also order a blood test to check for other signs of kidney damage (to look for the presence of waste products that would normally be removed from the blood if the kidneys are functioning properly).

What do the test results mean?

Test results within the ranges listed below indicate that kidney function is normal. Values above the reference range indicate that kidney disease or damage is present. If your test result shows a high level of protein or albumin, it is likely that your doctor will repeat the test.

If the second test is also high, your doctor may order additional tests to further check your kidney function. When either diabetes or high blood pressure is the cause of the albuminuria, treatment of these problems may reduce albuminuria or its progression to kidney disease. Certain blood pressure medications (angiotensin-converting enzyme (ACE) inhibitors, angiotensin II receptor blockers) are especially helpful at limiting kidney damage after microalbuminuria or albuminuria has been found.

Type of Urinalysis	Reference Range Considered Normal
Random urine test (i.e., small sample collected at the doctor's office)	Protein: 0 to 20 mg/dL (1.1 mmol/l); Albumin: 0 to 23 mg/L
Timed protein urine test (i.e., urine collected over a specified time frame, usually 4 hours or overnight)	0 to 6 mg/hr
24-hour protein urine test (i.e., urine collected over a 24-hour period)	0 to 0.15 gm/24 hr

Source: The Reference Laboratory at the Cleveland Clinic
Note: Normal value ranges may vary slightly among different laboratories.

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