

Kidney Health Information

Protein in urine (Proteinuria)

What is it?

Along with fats and sugars, proteins form the major building blocks for our bodies. The right amount of protein is important in our diets, for growth and repair.

Protein is present in the blood; healthy kidneys should only filter tiny (trace) amounts into the urine as most protein molecules are too large for the filters (glomeruli).

It is not usual to lose protein in the urine. When this does happen it is known as 'Proteinuria'.

Several proteins can be found in the urine, but the most relevant to kidney disease is albumin.

Protein in the urine is not usually obvious, but can be detected by a simple dip-stick test, or sometimes by more sensitive lab tests.

The presence of protein in the urine can act as a warning signal that not all is well with the kidneys.

Symptoms

- Usually there are no symptoms.
- If the protein loss is heavy, the urine has a frothy appearance, and would most likely be associated with other symptoms e.g. oedema, where there is an excess of water in the body tissues.

Possible causes of Proteinuria

- **Diseases of the glomeruli** (the kidney's filtering units), for example Glomerulonephritis or Diabetes.
- Urine infection can cause proteinuria, but usually there are other signs of this – see Cystitis/Urinary Tract Infections.
- Proteinuria can also be a symptom of some other conditions and diseases: for example: congestive heart failure, a first warning of eclampsia in pregnancy.
- Sometimes a positive dipstick for protein isn't abnormal, for example concentrated samples first thing in the morning, or if you have become dehydrated or haven't drunk much. Lab tests can sort this out (protein/creatinine ratio or albumin/creatinine ratio)
- Temporary proteinuria may occur after vigorous exercise or if you have a high fever
- Sometimes, almost always in children, proteinuria can be detected later in the day, but not in the morning. This is known as *orthostatic* Proteinuria and it is usually harmless.

What does it mean?

Proteinuria means there is something wrong with the kidney. Some warning signals make it more likely to be an important kidney problem:

- Large amounts of protein in the urine.
- There are also positive tests for blood in the urine

- Abnormal kidney tests (creatinine or eGFR)
- High blood pressure
- You are young

Heavy Proteinuria e.g. more than 2-3g per day, or a protein/creatinine ratio (PCR) of 200-300 or more will usually need investigation to find out the cause, unless it is obvious already.

Low levels of proteinuria e.g. less than 1g per day, or a protein/creatinine ratio (PCR) of less than 100 – if none of the above warning signals are present, it is often best just to keep an eye on the kidney tests, urine tests and blood pressure occasionally to make sure that nothing develops. The chance of discovering serious kidney disease is not very unless you are young, or there are other problems. Usually these checks can be done at your GP surgery.

Other important reasons why proteinuria is important

Patients with protein in their urine in their urine get more heart disease. This makes it even more important to keep a check on:

- Blood pressure
- Cholesterol (this is higher in patients with proteinuria)
- Other things causing heart disease such as smoking, obesity.

Finding out more

<http://renux.dmed.ed.ac.uk/EdREN/EdRenINFObits/ProteinuriaLong.html>
Proteinuria from the EDREN website

http://www.labtestsonline.org.uk/understanding/analytes/urine_protein/sample.html Urine Protein, from Lab Tests Online

<http://www.kidney.org.uk/Medical-Info/kidney-disease/proturia.html>
Protein in Urine from the website of the National Kidney Federation

Please be aware that we have made every effort to ensure this information is accurate; however we cannot guarantee that there are no mistakes. Also, the best management plans for individual patients may vary from those outlined here. Only the doctors caring for the patient will be able to advise on this. Please consult your own doctor.

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Illustration produced by Beth Shortt.

Kidney Research UK, Kings Chambers, Priestgate, Peterborough PE1 1FG
Kidney Health Information telephone number: 0845 300 1499
Or email: kidneyhealth@kidneyresearchuk.org
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