

More info on nephrotic syndrome

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What is nephrotic syndrome?

It is the name given to a condition when large amounts of protein leak out into the urine. Normal urine should contain almost no protein. In nephrotic syndrome the leak is large enough so that the levels of protein in the blood fall. This page has quite detailed information. If you want a more simple summary, go to our page with [short information on nephrotic syndrome](#).

What trouble does it cause?

The most obvious symptom is usually swelling of the ankles and legs. Extra fluid may also accumulate in the abdomen and around the face, especially overnight. In children and young adults the ankles may be less affected and the abdomen and face more affected. Most ankle swelling is caused by other diseases ; nephrotic syndrome is a rare cause of ankle swelling. Urine tests and blood samples are required to prove that nephrotic syndrome is the cause. The protein leak can sometimes make the urine frothy. Some people feel tired.

Other problems can occur in nephrotic syndrome, probably as a result of some particular proteins that are missing because of the leak.

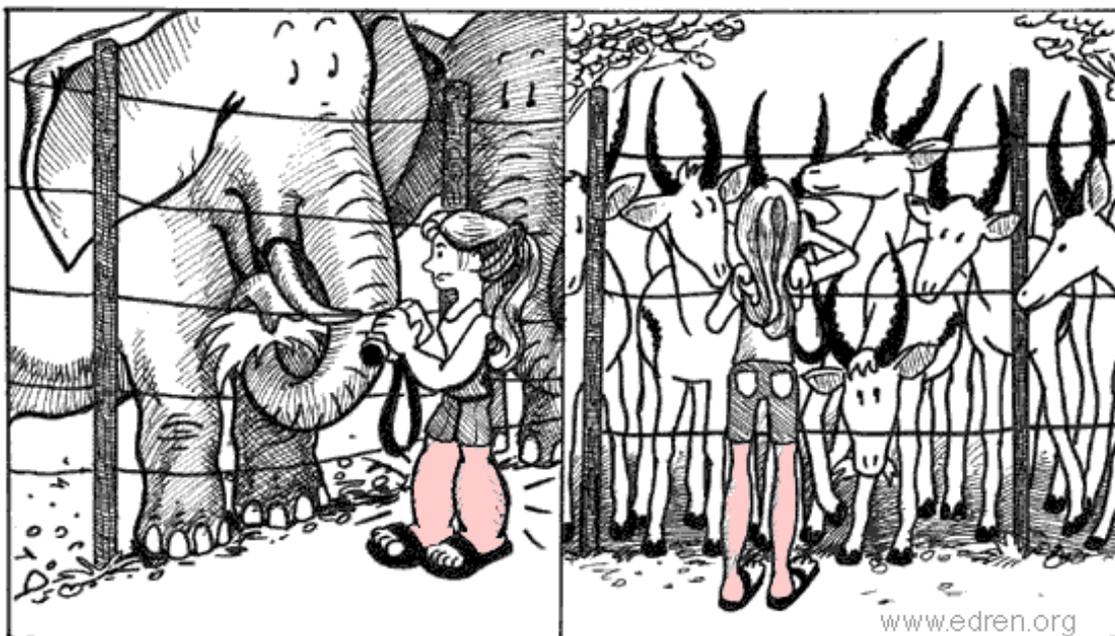
Infections: Patients are unusually susceptible to some infections.

Cholesterol: In people who have nephrotic syndrome for a long time, cholesterol

if often very high. This may increase the risk of narrowing of the arteries until it is treated.

Blood clotting: Blood is more likely to clot in veins, which may cause thrombosis in the leg veins and occasionally elsewhere.

Some of these may require extra treatments to prevent them.



Severe swelling of the ankles in nephrotic syndrome ... and after treatment. Cartoon by Beth Shortt, copyright www.edren.org. [Contact us](#) about re-use

What tests are necessary?

Lots of blood tests are useful. The most important test however is a renal biopsy. This test is designed to take a small piece of kidney to look at under the microscope. It is done with local anaesthetic and involves putting a needle into the kidney through the back; a scanner is used to find the kidney so the test is done in the X-ray department. [More information on kidney biopsies](#)

Can I do without a biopsy?

There are a few exceptions. In children the nephrotic syndrome is nearly always caused by a condition that responds easily to treatment, treatment is usually started first, and the biopsy only done if the protein leak is not cured. In diabetes, a biopsy may not be essential if there is strong evidence that it is likely to be related to diabetes. In adults, however many causes are possible, making a renal biopsy important - see next section).

What causes nephrotic syndrome?

In many cases, a definite cause is not found. Some have recognised underlying causes such as an allergic reactions to medicines, slow infections like Hepatitis B, and diabetes. It is divided into a number of types according to the appearances of the kidney under the microscope. These different types respond to treatment differently, and may mean different things for your future health.

Disease	Comments
Minimal change disease	Most common in children usually responds quickly to steroids
FSGS	Cause is unknown in most cases, some response to special treatment
Membranous nephropathy	Cause is often unknown, but may occur with other diseases drugs and infections. Some improve with time but some deteriorate, these may respond to treatment with immunosuppression
MCGN	Rare cause of nephrotic syndrome, can be associated with other medical conditions
Diabetes	Occurs as a long term complication in some patients. More likely if blood sugar has been poorly controlled. Excellent control of blood pressure and treatment with ACE inhibitors reduces the risk of renal failure
SLE	More common in young women mainly affecting skin and joints, SLE affecting the kidney is rare and usually requires special treatment
Amyloid	Usually a consequence of other chronic diseases like Rheumatoid Arthritis, or of chronic infections

What treatment is available?

The effects of **fluid retention** are managed by diuretics that force the kidney to put out more salt and water in the urine. This is helped by restricting the amount of salt in the diet and by avoiding excessive fluid intake. If a lot of fluid has been retained, it is important that diuretic therapy is carefully controlled by regular blood tests and weighing. Some patients may require to be admitted to hospital.

Diet – dietary protein should not be increased above normal. Avoiding excessive salt is very important.

Control of blood pressure (often high in people with kidney disease) is important in all patients. A type of blood pressure drug known as an ACE inhibitor has been proven to be particularly good at protecting kidney function and reducing the amount of protein in the urine. You are very likely to be prescribed one of these. [More information on high blood pressure and kidney diseases](#)

Special treatment to **prevent the complications** mentioned above (infection, high cholesterol, thrombosis) is also important, especially if the nephrotic syndrome is likely to last for a long time.

According to the type of kidney disease diagnosed by the biopsy, treatment to **control the cause** of nephrotic syndrome may be recommended:

1. **Nothing**: some cases of the nephrotic syndrome will improve with time and require no special treatment. Others are known to respond very poorly to any known treatment.
2. **[Steroid tablets](#)** (eg prednisolone): one form of the disease ('minimal change disease') is very sensitive to steroid treatment and short courses of these can be used, often with great success. Short-term use of steroids minimises their potential side-effects.
3. **[Immunosuppression](#)**: some of the more difficult cases are thought to be triggered by the body's own immune system, and treatment to control this can be used. These therapies come either as tablets or as drips which are given in hospital. These treatments are not commonly used because they can be toxic but they can also be very effective in some patients.

[Further information on immunosuppressive drugs](#) used in kidney diseases is available [here](#).

Are there any long term complications?

In some cases there are. Some people with severe disease do not respond to treatment. After years of heavy protein leakage, the kidneys can fail, and some people will progress onto kidney failure with the need for dialysis or a transplant to keep them well. The renal biopsy and other tests help to predict the likelihood of this.

Where can I get further information?

We have not found much good general information about nephrotic syndrome on the internet. The following causes of nephrotic syndrome have separate pages within **EdRenINFO**: click on the names to read them.

- [Minimal change disease](#)
- [FSGS](#) (Focal Segmental GlomeruloSclerosis)
- [Membranous nephropathy](#)
- [Diabetes](#)
- [SLE](#)

For [other EdREN topics](#) (including information on chronic renal failure, dialysis, and transplantation) click [here](#).

Medical staff and other healthcare workers may find the following pages useful:

- [Measuring proteinuria](#), from the EdREN handbook
- Guideline on [management of asymptomatic proteinuria](#) from the GP section

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