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Metabolic Evaluation for Kidney and Ureteral Stones

The underlined terms are listed in the glossary.

If you have a high risk of forming more stones (See *Causes of Kidney and Ureteral Stones*), your doctor will do a metabolic evaluation. This is a series of blood and urine tests to determine which additional treatment you may need.

As part of the metabolic evaluation your doctor will ask you to collect your urine in 2 separate periods of 24 hours. This is done some 3 weeks after your stone has passed or has been removed. The amount of urine is measured and so are the levels of different substances in the urine.

Depending on the test results, you may get medication. Generally, the medication will cause little

or no side effects. In addition, it may be helpful to consider lifestyle changes (See *Prevention of Stone Recurrence*).

Two to three months after you start medication, the doctor will take another urine sample to check if the dosage should be adjusted.

For a large part, treatment depends on the kind of stone you had. Below you can read about different types of stones and the measures used to prevent their recurrence.

Calcium-oxalate stones

If you had a calcium-oxalate stone you may have a high risk of forming more stones but this is not always the case. After you have had a calcium-oxalate stone you should:

- Eat fewer oxalate-rich foods (for instance rhubarb, beet, okra, spinach, Swiss chard, sweet potatoes, tea, chocolate, and soy products)
- Reduce consumption of purine rich foods



Interesting Fact

Urine substances include calcium, magnesium, oxalate, and uric acid.

- Don't take more than the daily recommended amount of vitamin C
- In all cases, check with your doctor for personal advice

If the metabolic evaluation shows that you have a high risk of forming more stones you will get medication to reduce the risk of recurrence.

Calcium-phosphate stones

If you had a calcium-phosphate stone you may have a high risk of forming more stones but this is not always the case. The type of treatment you get depends on the cause of the stone.

Uric acid stones

If you had a uric acid stone you have a high risk of forming more stones. Eating less purine rich foods can lower the chance of you forming another stone. High levels of purine are found in certain types of fish (like herring, mussels, smelt, sardines, anchovies), red meat and organs (heart, liver, kidney).

You will get medication to keep the pH-value of your urine between 6.2 and 6.8. You can check the pH-value of the urine easily at home with dipstick tests.

Ammonium urate stones

If you had an ammonium urate stone you have a high risk of recurrence and you may also have a urinary

tract infection. You will get antibiotics to treat the infection and you will need to take medication to keep your pH-levels between 5.8 and 6.2.

Struvite and infection stones

If you had a struvite or an infection stone, you have a high risk of forming more stones. You may need to take antibiotics to make sure the infection does not come back.

Cystine stones

If you had a cystine stone you have a high risk of forming more stones. You need to drink enough fluids to produce at least 3 litres of urine every day. Eating less salt will lower the level of cystine in your urine. You will get medication to increase the pH-value of your urine to 7.5 or higher. On top of that you may get medication to reduce the level of cystine.

Other stones

There are other types of stones that are very uncommon. Your doctor will discuss your individual situation and treatment options with you.



Go Online

Read more about how to adjust your diet for oxalate, purine, and salt in these Litholink brochures

<http://www.litholink.com/en/DietInformation>

This information was last updated in June 2012.

This leaflet is part of a series of EAU Patient Information on Kidney and Ureteral Stones. It contains general information about stone disease. If you have any specific questions about your individual medical situation you should consult your doctor or other professional healthcare provider.

This information was produced by the European Association of Urology (EAU) in collaboration with the EAU Section of Urolithiasis (EULIS), the Urolithiasis Section of the EAU Young Academic Urologists Group, and the European Association of Urology Nurses (EAUN).

The content of this leaflet is in line with the EAU Guidelines.

Contributors:

Dr. Thorsten Bach	Hamburg, Germany
Dr. Murat Binbay	Istanbul, Turkey
Ms. Nicola Dickens	London, United Kingdom
Ms. Bente Thoft Jensen	Århus, Denmark
Prof. Dr. Thomas Knoll	Sindelfingen, Germany
Mr. André Mendes	Castelo Branco, Portugal
Dr. Francesco Sanguedolce	Barcelona, Spain
Dr. Christian Türk	Vienna, Austria