

PREVENTION OF KIDNEY STONES

You have been found to have a stone within the urinary tract (i.e. the kidneys, ureter or bladder). You have an increased risk of forming further stones in the future - between 35-45% over the next ten years. The following information is to help you to avoid this.

The kidneys act as filters, removing unwanted and toxic substances from the blood. Some of these substances do not dissolve easily and can form crystals if their concentration in the urine gets too high. If the crystals collect together they can form a stone.

Practical prevention of stones is done by reducing the concentration of those substances that can crystallise in urine in two ways:

- 1) Diluting urine with water (high fluid intake)
- 2) Decreasing the production of substances which can crystallise (dietary advice and other measures)

High Fluid Intake - i.e. Make More Urine

This method of stone prevention is simple, free, not dangerous and does not require medical assistance. Research has shown that fluid intake is the single most important factor in reducing stone formation. You should aim to drink enough fluid to make 5 pints (2½ litres) of urine a day. This high fluid intake should be spread over the whole day and, should you have to pass urine at night, have some water afterwards. Many people who have had stones complain that it is impossible to drink so much. Please try, and remember that it is the ones who find it most difficult who tend to be get recurrent stones!

If your urine is always clear you are unlikely to form another stone - if the urine becomes dark, yellow or strong then the concentrations of the substances that can form stones are high and you may start to make stone. In hot weather and hot working conditions, a higher fluid intake will be required to compensate for fluid lost through sweating. In short, if your urine goes dark, panic! Go and drink some water straight away. Alcohol causes dehydration so be sure to take lots of water, especially before you go to bed, sober or not.

By drinking this large amount of fluid, your urine will tend to be dilute enough so that crystals do not form. Even if tiny ones do form, they are likely to be flushed out before they can cause trouble. Any fluids will do (except milk - see "Restrict Dietary Calcium Intake" below) although water is probably the best (even 'hard' or mineral water). **The main thing is the fluid volume** and any way you can find to make this high fluid volume attractive to drink (and not too fattening or intoxicating) is satisfactory. You may find it necessary to build up gradually towards drinking 5 or 6 pints of fluid a day, but once the target volume is achieved, it should become easier - in fact almost a habit - to continue your high daily fluid intake.

Your body and your kidneys can easily cope with the extra fluid load unless you have damage to the kidneys or other organs. If it causes fluid retention or ankle swelling then consult your doctor. A few people may find that they have to pass urine so often when drinking six pints a

day that their lives are ruled by their bladders. Medical help and advice may be required in these circumstances.

Research has shown that 'stone formers' drink much less, on average, than people who do not form stones. Remember, theoretically, we should all make stones if we do not drink enough (which is why stones are extremely common in hot countries). As a 'stone former' you may also have less of the inhibitors of stone formation than others who do not tend to make stones, so you need to drink more than they do.

Most people produce chemicals that inhibit crystal formation and prevent stones formation - one of the reasons why some people form stones is that they may have lower levels of these substances.

Citrate is one of the chemicals that prevents crystals forming and, in some cases; taking citrate will help to prevent stone formation. Unfortunately, it is difficult to increase the effects of other inhibitors at present.

Restrict Dietary Calcium Intake

Most stones contain calcium and it is sensible to avoid excessive amounts of calcium in your diet. Milk and milk products (including cheese and yoghurt) are the main culprits and you should restrict your intake of milk and milk products to the equivalent of not more than half a pint of milk a day. Do not try to eliminate calcium from your diet altogether as this leads to increased absorption of oxalate, the other major component of most stones. Water, even mineral waters, seldom contains enough calcium to be problematic. You will remain perfectly healthy (e.g. with normal bone strength) because little calcium is required in your diet once you are fully grown.

Avoid vitamin D supplements (including cod-liver oil) as vitamin D increases calcium absorption from the gut.

Further Dietary Advice

This is normally only required for the small minority of people who continue to form stones despite increasing their fluid intake and restricting their calcium intake. For such people the help of a special clinic and a dietician are available. It is useful to reduce your consumption of animal protein and of calories, and to avoid extra salt on your food (i.e. the hallmarks of the "westernised diet" which appear to contribute to so many of the degenerative diseases and cancers of western society). Try to avoid eating red meat more than three or four days per week and when you do eat it limit yourself to a 4oz portion.

Avoid foods containing oxalic acid. This forms another major component in many stones and is especially concentrated in rhubarb, spinach and strawberries. Smaller amounts are found in tea, nuts, cocoa and chocolate. Excessive amounts of Vitamin C supplements may be converted to oxalic acid in the body.

A very few people have special metabolic disorders which require other forms of treatment in addition to the above.